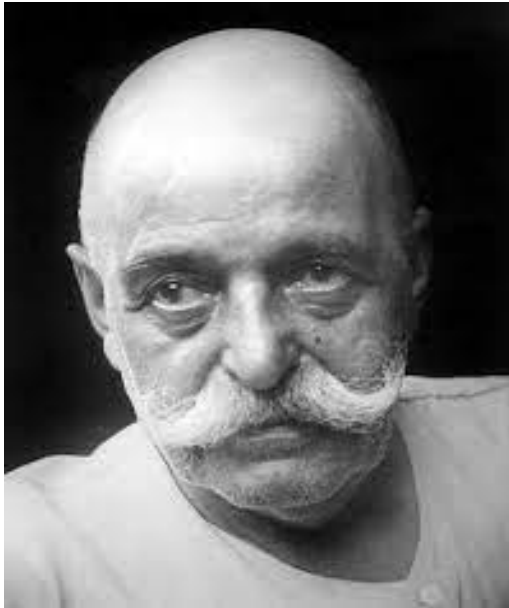


# The “Lunatic” Astronomy of G. I. Gurdjieff

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### **ABSTRACT**

The following study will inform and analyze the ancient ideas adapted to a contemporary approach by G. I. Gurdjieff, many of them fascinatingly interesting, especially the psychological ideas, however, due to space limitations, this study will be limited to analyzing only the cosmological ideas, more specifically, the theory of the Ray of Creation and his strange ideas about the Moon, with their astronomical implications, probably the most fanciful themes in his System. It will also demonstrate how this theory was not subsequently confirmed by scientists, even about a hundred years after its dissemination, as well as how subsequent astronomical research, in almost all points, reached results so contrary to what this esotericist preached, due to the discoveries later, Gurdjieff could not have imagined the gigantic development of astronomy in the second half of the 20th century.

**KEYWORDS:** G. I. Gurdjieff, Fourth Way, Ray of Creation, Moon,

## **Introduction**

To who have been inside and now observe from the outside, it is curious to note how those who study and practice esotericism, or those who are just sympathizers, hardly realize that their minds do not convey the suspicion that the secrets, mysteries, symbols and esoteric ideas, reserved for the knowledge of initiates, could never be obsolete and ineffective ideas, practices and representations for today's times, due to antiquity and primitivism, secretly preserved from an ancient and pre-scientific era, when fantasy, symbolization and mystification was the means of speculation and recording, in place of the scientific method of investigation yet to emerge. Therefore, for the esotericist, secret knowledge, which is passed on to the initiate, is an indisputable sign of veracity and trust, which is why it must be kept confidential, so that it does not reach the hands of those unprepared to receive it. The more secret the teaching or practice, as well as the older, the truer. Therefore, the degree of veracity of knowledge and the effectiveness of a practice can be measured, among other ways, by the degree of preservation of the secret. Maintaining secrecy within esoteric traditions is sufficient to ensure their veracity and effectiveness. Even for some esotericists, the older the secret, the truer and valuable. The hypothesis

that a secret could be just a primitive conjectural speculation, still devoid of the necessary instrumentality for its confirmation, does not cross their minds, which is why it has become, over time, an obsolescence, because, for them, if it is a secret esoteric, then it is an indisputable truth, and even eternal, so that there is no untrue secret in esotericism. And when we rarely find some esotericists distrusting esoteric secrets, it is always the teachings or practices of a rival esoteric tradition. For example, the French esotericist René Guénon, who severely criticized the Theosophical Society, through an extensive book, calling it a “pseudoreligion”.

Now, strictly speaking, leaving aside the feeling of fascination that mysteries provide, the secret, whether esoteric or popular, can be as untrue as any rumour or any story told at a bar table. Because secrecy is not a sufficient basis for the veracity of an idea or a fact, people have always kept lies secret. Furthermore, secrets can also cover up crimes. Criminal gangs, the Yakuza and the Mafia have secrets, the latter swears an oath not to divulge secrets.

In possession of secrets, esotericists think that they provide them with ideas and practices that, due to secrecy, few know about, so it is common to find esoteric authors justifying the ignorance of scientists in the face of esoteric secrets. In other words, “esoteric truths” are not recognized by the sciences due to the

inaccessibility of scientists to the secrets of the initiated. So, it is common for esoteric authors to explain a certain subject from an esoteric perspective, many of them quite fanciful, and justify that the non-recognition of the esoteric version by the scientific community is due to the fact that scientists do not yet have access to such “esoteric truths”. Some authors even claim that one day scientists will recognize these “truths”, when they eventually reach their hands. Many esotericists still dream of this possibility.

This is an example, among others, of what the followers and admirers of the Greek-Armenian esotericist George Ivanovich Gurdjieff (1872-1949) believed, and still believe, who stated that the knowledge he brought from his travels through the East was unknown of scientists, as the latter did not have access to such esoteric doctrines and practices. Therefore, the study below will inform and analyse the ancient ideas adapted to a contemporary approach by this esotericist, many of them fascinatingly interesting, especially the psychological ideas, however, due to space limitations, this study will be limited to analysing only the cosmological ideas, more specifically, the Ray of Creation theory with its astronomical implications, probably the most fanciful theme in G. I. Gurdjieff's System. The following study will demonstrate how this theory was not subsequently confirmed by scientists, even about a hundred years after its dissemination, as well as how

subsequent astronomical research, in almost all points, reached results so contrary to what this esotericist preached, due to of later discoveries, after the creation of super-powerful observatories, of orbital telescopes (Hubble and Kepler) and the James Webb space satellite, of special probes (Voyager I, Voyager II, Soho, Galileo, Pioneer, New Horizons, etc.), of radio telescopes, rover probes for extra-terrestrial exploration (Spirit, Opportunity and Perseverance), cosmic microwave background radiation meters, etc. As well as, the collection of lunar soil samples, the analysis of soil samples from the planet Mars by rover probes, the confirmation of the existence of Black Holes and the creation of particle colliders contributed to the stupendous advancement in cosmological and subatomic knowledge in recent decades. Gurdjieff could not have imagined the gigantic development of astronomy in the second half of the 20th century.

### **The Life of George I. Gurdjieff**

When we study religious traditions from a historical and dispassionate perspective, that is, independently of catechetical and propagandist preaching, it is possible to see how enigmatic some of their founders are, the older they are, the more confusing, resulting, since the beginning of the tradition, in the multiplication of interpretations about their personalities, their lives and their

teachings. Christianity is an example. We know that at the time of the Council of Nicaea (325 c. e.), there were around fifty different gospels, of which more than thirty have already been recovered and published, preserved either in full or in fragments. At the time, only four gospels were recognized as authentic by the then dominant current, that is, the four current canonical gospels. This multiplication of interpretations happened in the continuity of other religions as well. This same example happens with personality, life and teachings of G. I. Gurdjieff. One of his devoted disciples, John G. Bennett, began his account of his master's personality and life in the following manner; "Gurdjieff was a great enigma in many ways. The first and most obvious is the fact that not even two people who knew him agree on who he was. If one looks at the various books that have been written about Gurdjieff and if you look at his own writings, you will find that no two accounts are the same. Everyone who knew him, when he reads what other people wrote about him, feels that they did not understand him correctly. Each of us believes we saw something that others did not. This is undoubtedly true. This happened because of the peculiar habit he had of hiding himself, of appearing to be something other than what he really was. This was very confusing, and started from the time he became known in European countries" (Bennett, 1974: 01; see also: Cusack, 2021: 612). John G. Bennett also reported that G.

I. Gurdjieff altered his teachings and practices over the years of his successive experiments, so that those who met Gurdjieff at the beginning of his teaching career formed a different idea from those who met him in the last years of his life. He explained: "A striking feature of Gurdjieff's teachings and methods is that he never stood still. Until the end of his life, he continued experimenting and there was no stationary period. (...) Experiment can lead to misunderstanding because people familiar with a particular period of their life may take it to be representative of the whole, and find themselves in complete contradiction with people who knew a different period of their life" (Bennett, 1974: 70). Another factor that points to the fictionality of his autobiography (or auto-mythology), reported in *Meetings with Remarkable Men*, begun in 1927 in Russian with several revisions by the author, first French edition in 1960 and first English edition in 1963, through the translation by Alfred R. Orange, is the difference in the account of his personality and his behaviour, so protagonist, so friendly, so heroic and so beloved, in his autobiography (auto mythology), and the accounts of his personality and his behaviour by his followers after his establishment in Europe as an instructor. Since his career from then on was not so happy (he suffered two serious automobile accidents) and his temperament was not very friendly, James Webb observed that, around the 1930s, "Gurdjieff



seemed to have become at odds with all his older followers”, (Webb, 1987: 18). One of the most notorious fights was with one of his most recognized exponents, Pyotr D. Ouspensky (1878-1947), which occurred in 1924, which resulted in their mutual separation until the end of their lives. Even after the breakup, Ouspensky nevertheless continued to teach Gurdjieff's ideas and practices in London.

As mentioned above, Gurdjieff was not the only enigmatic leader, shrouded in mystery, many others, the older they are, the more shrouded in myths and mysteries. Many ancient prophets are known only through mythological accounts. Some have two versions, one historical and the other mythological. Just as current historians and researchers try to separate what is myth and what is history in the lives of the founders of religions, as well as what is said to be original and what is a later interpolation introduced by followers. This same historical undertaking needs to be done in the accounts of Gurdjieff himself and his disciples. Some excerpts from his autobiography, *Meetings with Remarkable Men*, seem like fiction, which reminds us of adventure books or films, while other episodes may be historical facts, therefore a combination of historical and fictional facts. Gurdjieff presents himself in this autobiography as a handyman, who is capable of doing almost anything, including the successful fraud of painting sparrows yellow and selling them as American

canaries. He did not have a defined profession, he left formal school when he was still a teenager to be instructed by private tutors, so he never attended university, although in his autobiography he reported that he had skills in many tasks, which made him highly sought after.

Verifying the veracity of accounts of someone's life becomes limited when the only source of information is from the author of the self-biography, as it is not possible to compare it with other sources. When the author is the only source of information, the reader is consequently forced to trust his testimony. This is the case of the stage of G. I. Gurdjieff's life reported in his autobiography *Meetings with Remarkable Men*, 1963. Due to its fictional character, James Moore defined it as "non-historical and self-mythopoetic" (Moore, 2006: 246; see also: Huggins, 2019: 01). In another work of his, *Gurdjieff: The Anatomy of a Myth: A Biography*, J. Moore called the first part of this work, which deals with the information included in *Meetings with Remarkable Men*, "self-mythology" (Moore, 1991: 07-38 ; see also: Huggins, 2019: 01), something as if G. I. Gurdjieff had created a mythology for himself. Regarding this partly mythological self-biography, Carole M. Cusack observed that G. I. Gurdjieff's travels in search of wisdom are "recorded in a fictionalized form" (Cusack, 2021: 612). Strictly speaking, it can be added that the work is a combination of self-mythology with self-hagiography, due to the

author's self-centred, predestined and self-glorifying character.

The effort in search of truth by G. I. Gurdjieff and his companions, a group of curious dreamers obsessed with finding that which is not available to everyone, called "Truth Seekers" in the book (Gurdjieff, 2002: 164-5; 208- 11 and *passim*), leaves the reader with the idea that the truth could not be found in the scientific or academic culture of that time (late 19th century). For these dreamy adventurers, wisdom needed to be sought behind the veiled teachings of hidden and ancient esoteric schools. As far as it is possible to extract from the book, despite the group being made up of some members with academic and scientific training (archaeologist, engineer, etc.), the research method is too amateurish and rudimentary to have the power to produce significant results to the scientific world, since it was not guided or sponsored by scientific or academic institutions. As well, the main proof of the investigative precariousness of the expeditions is the fact that they did not yield research results through publications, since they are not mentioned in books, nor are it possible to find publications resulting from these "Searchers" research work. In conclusion, a useless effort, hence the suspicion of some authors that these "Truth Seekers" never existed and that they are characters in a piece of fiction invented by Gurdjieff in the book. It must have been included in his self-biography in order to

enrich his intellectual carrier, as a participant in scientific activities, such as, for example, archaeological excavations. Of the participants in this group of "Truth Seekers", almost all of them died at an early age (Soloviev, Vitvitskaia and Karpenko), or disappeared never to be found again (Prince Yuri Lubovedsky, Ekim Bey and Skridlov), so it is not possible to find them for let them testify whether these "Seekers" really existed, or whether their activities took place in the way reported in Gurdjieff's self-biography. Anyway, from the point of view of the rigorous scientific method, this group of Seekers of Truth seems more like a group of dreamy eavesdroppers chasing utopian goals, rather than scientific researchers. That is, occupied more with adventure than with Science.

The practice of reporting stories without leaving clues or traces for investigation is very common in esoteric and religious reports, so that they are free from opposition and thus have the appearance of reality. This is a very effective trick on listeners or readers. The most persuasive reports are those that are impossible to trace to the truth, as they depend on exclusive trust in the narrator, which is why it is a concern of the narrators of fantasy reports not to leave traces susceptible to investigation, that is, not to leave clues that reveal fictionality. So, killing some characters and making others disappear never to be contacted again, as G. I. Gurdjieff did in his self-biography, is a formula for getting rid of

investigative clues and, consequently, forcing the reader to believe only in the narrator, thereby achieving effect persuasive. One of G. I. Gurdjieff's biographers, James Webb, justified the composition of *Meetings with Remarkable Men* as follows: "The book was partly designed to answer the recurring questions that were most frequently asked in his time. Also, it is designed to serve as material to prepare for an understanding of his system. He claimed that it was also designed to give a picture of his own life, but in the style in which this picture was painted, he did not say." And he concluded that "the book is equally replete with symbols and allegorical stories" (Webb, 1987: 28). He explained further: "most of these characters probably had no historical existence. Perhaps there never was a Yelov or a Madame Vitvitskaya. But throughout the brightly coloured adventure story and through the sips of Armagnac, which Gurdjieff reported he had drunk in heroic quantities while writing the book, an undeniable sense of authenticity emerges. The characters may be imaginary and composite, but a rich supply of autobiographical experience from Gurdjieff's undoubtedly adventurous past enters into the composition of the work" (Webb, 1987: 28). As for Gurdjieff's passion for drink, he praised it in the introduction to *Meetings with Remarkable Men*, "of the no less sublime liquid called old Armagnac..." And in the next paragraph, he mentioned the following insignificant detail, which presupposes

that he must have been drunk when he wrote it: "...from the first day that I changed my custom of drinking Armagnac with what are called glasses of liquor and began to drink it with what are called glass cups..." (Gurdjieff, 2002: 03). Well, it may be that Gurdjieff tried to print a didactic message between the lines of his autobiography, but the intriguing fact is that many of Gurdjieff's followers and admirers, even in the face of so much fiction, believe that everything in his autobiographical book, or in the film, is real.

### **Gurdjieff and the Essenes**

Before going into the analysis of some of his astronomical beliefs, it would be interesting to point out an example of one of the many fictional passages from his autobiography (or self-mythology) reproduced in *Meetings with Remarkable Men*. This is a mention of the survival, until that time (second half of the 19th century), of the Essene community. About the latter, he wrote in his autobiography (or auto mythology): "Bogachevsky, or Father Evlissi, is still alive and well. And he has the good fortune to be assistant to the abbot of the main monastery of the Essene Brotherhood, situated not far from the shores of the Dead Sea. This brotherhood was founded, according to certain assumptions, twelve hundred years before the birth of Christ, and it is said that in this brotherhood Jesus Christ received his first

initiation" (Gurdjieff, 2002: 58, see also: Huggins, 2019: 02). He claimed that he was personally in contact with members of this community: "I was among the Essenes, most of whom were Jews..." And, elsewhere, he reported the fanciful phenomenon that "by means of ancient Hebrew music and songs, they (the Essenes) made plants grow in half an hour" (Gurdjieff, 2002: 133; see also: Huggins, 2019: 11-2).

At the time Gurdjieff wrote his mythological autobiography, many references to the Essenes were already known, through ancient and contemporary authors, including the mention of the location of one of their communities near the Dead Sea, and he certainly read some of them. Ronald V. Huggins organized a list of works, whose mentions of the Essenes were published in the 19th century (Huggins, 2019: 03-8). He noted: "It was common knowledge that the Essene community had been on the shores of the Dead Sea since the time of Pliny the Elder, who mentioned it in his book *Natural History*, written in the first century c. e." (Huggins, 2019: 03). Another ancient author who mentioned the Essenes, located near the Dead Sea, was Sinesius of Cyrene (370-413 c. e.), in his biography of *Dio Chrysostom*: "Also, somewhere, he praises the Essenes, who form an entire and prosperous city near the Dead Sea, in the centre of Palestine, not far from Sodom" (Huggins, 2019: 03n9).

Pliny specified in his *Natural History*: “on the western side of the Dead Sea, but out of reach of the noxious exhalations of the coast, lies the solitary tribe of the Essenes” (Idem: 03). Thus, “the above passage from Pliny, concerning the location of the ancient Essene community, was widely known to esotericists in Gurdjieff’s time, and was of particular interest to those wishing to proclaim, as Gurdjieff did, that Jesus was associated with the mysterious group. This was especially the case in the types of esoteric circles with which Gurdjieff came into contact” (Idem: 04).

The ruins of Qumran were already superficially known<sup>1</sup> in Gurdjieff’s time, they were called by the Arabic names of *Kharbet-el-Yahoud*, *Kharbet-Fechkhah* and *Kharbet-Goumran*, but the researchers at that time disagreed about which ancient city the ruins belonged to. The 19th century French explorer Louis Félicien de Saulcy, after his visit to the site in the years 1850-1851, stated that he had no doubt that the ruins were from the biblical city of Gomorrah (Huggins, 2019:

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<sup>1</sup> That is, before the archaeological excavations undertaken after the discovery of the manuscripts in the caves near the Dead Sea, for the first time, in 1946, when it was possible to know that it was a Jewish community buried centuries ago, therefore the ruins known before were only the upper parts that were not covered by soil. In popular words, “they were just the tip of the iceberg”. The discovery of the manuscripts nearby sparked the interest of archaeologists in the scientific excavation of what could be beneath those ruins.



03n7). Another curious person from that time who visited the region was the Reverend Albert Augustus Isaacs (1826-1903), whose trip led to the publication of the book *The Dead Sea: Note and Observations Made during a Journey to Palestine in 1856-7 – on M. de Saulcy Supposed Discovery of the Cities of the Plain*, published in 1857. Both are seen as amateur archaeologists today and were very wrong in their assumptions.

Whether or not the ruins of Qumran are the ruins of an ancient Essene community is a debate that has been going on for a few decades, although most researchers are inclined to say yes, but it is still not unanimous. As well, whether or not the manuscripts found in the caves are Essene writings remains a doubt for some researchers. There are similarities, but there are also divergences, between the contents of these manuscripts and the information provided by ancient authors.

Contemporary authors who preceded Gurdjieff also reproduced Pliny's information, thereby reinforcing the idea that a community of Essenes existed near the Dead Sea and that Jesus was associated with it. One author was Arthur Lille, who included this information in his 1887 book *Buddhism and Christendom*, or *Jesus, the Essene* (p. 130), as well as the author E. Planta Nesbit in his 1895 book *Jesus an Essene* (pp. 120-1). In contrast to these arguments, Albert Schweizer reviewed these arguments from

previous authors in his well-known *The Quest of the Historical Jesus*, from 1906, in the chapter on “the oldest fictional biographies of Jesus”. A. Schweizer assessed these arguments as “crude and fantastic” (pp. 38-47). However, the belief that there was an Essene community near the Dead Sea and that Jesus was an Essene survives to this day among theosophists, esotericists and new agers (Huggins, 2019: 04). Gurdjieff went even further than these previous authors, reporting that the Essene community at the Dead Sea survived until his time and that he contacted it.

Another book, even better known, that influenced Gurdjieff on these themes, was *Les Grands Initiés: Esquisse de L'histoire Secrète des Religions* (The Great Initiates: Outline of the Secret History of Religions), first edition 1889 (2 volumes), whose author Gurdjieff personally knew, Édouard Schuré, who also located the Essenes on the banks of the Dead Sea and stated that Jesus received his training there (vol. II, p. 288). Another former theosophist that Gurdjieff met personally was Rudolph Steiner, who abandoned the theosophical society and founded the esoteric school Anthroposophy. He also claimed that Jesus was an Essene, but, differently, located the whereabouts of the Essenes in Nazareth. Later Gurdjieff made negative comments about Anthroposophy (Huggins, 2019: 07).

The best-known author to mention this subject at that time was Helena P. Blavatsky, one

of the founders of the well-known Theosophical Society, who also reported that Jesus was trained by the Essenes and located them on the shores of the Dead Sea in her *Isis Unveiled: A Maser-Key to the Mysteries of Ancient and Modern Science and Theology*, first edition 1877, 2 volumes, (volume I, xxx and 434).

As mentioned previously, although the vast majority of researchers accept the idea that some of the Dead Sea Scrolls (especially the *Rule of the Community*, the *Damascus Document*, the *Rule of the Congregation* and other fragments) are Essene texts, these texts do not call themselves of Essenes, since the complete similarity between the data on the Essenes provided by Flavius Josephus, Philo of Alexandria and Pliny the Elder, is not possible to be demonstrated in full, only partially, and this association is not an absolute unanimity among researchers, as there are some doctrinal and practical differences that need to be considered. Furthermore, there is no unanimity among researchers so far, regarding the claim that the ruins of Qumran are the ruins of an Essene community.<sup>2</sup> There is not enough archaeological data for such identification, which would lead to excluding the possibility of other Jewish sects.

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<sup>2</sup> For arguments in favour of this identification, see: Vermes, 2004: 46-8 and Huggins, 2019, *passim*, and for an extensive discussion of the controversy, see: Collins, 2013: 33-66.

Also, the identification of the Dead Sea Scrolls with the ruins of Qumran is doubtful.

Regarding his friend and former tutor (Bogachevsky or Father Evlissi), Gurdjieff reported that at an occasion “he became friend with a seller of rosaries who traded near the Temple of the Lord. This merchant was a monk of the Essene Order<sup>3</sup> who, having gradually prepared Bogachevsky, introduced him into his brotherhood. Due to his exemplary life, Bogachevsky was appointed director and, a few years later, principal in one of the arms of this brotherhood in Egypt; and later, on the death of one of the assistants of the abbot of the main monastery, Bogachevsky was appointed in his place” (Gurdjieff; 2003: 72-3).

Bogachevsky could not have been an assistant to the abbot of the Essene monastery, since it no longer existed at Gurdjieff's time. Huggins suspected the existence of the Essene monastery and, consequently, the occupation of this position, in the following words: “his (Bogachevsky's) supposed occupation as assistant to the abbot of the (non-existent) main Essene

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<sup>3</sup> It is interesting to note that, in the descriptions of the Essenes, both in ancient authors and in the Dead Sea Scrolls, we do not find the possibility that a monk of the Essene order could work as a “merchant” and “seller of rosaries”, it seems that he was an occupation that does not comply with community rules. So the questions remain, is a monk who works as a merchant and seller of rosaries, in fact, a monk? What is the degree of monastic renunciation in this activity?

monastery in the vicinity of the Dead Sea” (Huggins, 2019: 08). Further on: “Evlissi could not have occupied the positions in the Essene monasteries described (by Gurdjieff) simply because neither the ancient Essenes, nor the Therapeutae, nor any of their monasteries, continued to exist after Antiquity.” And, after analysing the works of several authors who were in that region in the last half of the 19th century, it concluded: “...it is absolutely clear that there was no functioning Essene monastery anywhere along the Dead Sea at that time” (Huggins, 2019: 12 and 14).

In addition to the ancient and contemporary authors mentioned above, Philo of Alexandria (15 b. c. e. – 50 c. e.) also spoke of a group of Jewish Essenes called Therapeutae (Therapists), most of whose communities are found in Egypt, near Alexandria, on a nearby hill to Lake Mareotis. These Therapists are identified with the Essenes by many authors. Also, the contemporary Édouard Schuré, author of *Les Grands Initiés* (The Great Initiates), reported in this book that the Essenes “had two main centres, one in Egypt, on the banks of Lake Maori, the other in Palestine, in Engaddi, near the Dead Sea” (Schuré, 1920, vol. II, 288 and Huggins, 2019: 10). Gurdjieff may have taken this idea from the authors above as “the basis for the creation of modern fiction about the career of Father Evlissi (Bogachevsky) among the Essenes” (Huggins, 2019: 11). Anyway, what Gurdjieff did to

create the fiction about the survival of the Essenes was “to take advantage of something generally known about the location of the main Essene community in ancient times and contemporize it in the story of Father Evlissi (Bogachevsky) as assistant to the abbot there” (Huggins, 2019: 09).

## **Unfounded Criticism**

If we believe Gurdjieff's reports, forged in his autobiography (self-mythology) and the reports he made in the following years to his disciples, we are led to conclude that he contacted different religious traditions, as well as read about many esoteric schools. Within the vast universe of readings and contacts, he condensed his opinions and, from then on, elaborated his doctrine and practice of the Fourth Way. Based on his preferred opinions, he also criticized the doctrines and practices of other religious and mystical systems, sometimes in a metaphorically mocking way, as can be found in his book *Beelzebub's Tales to his Grandson: An Objectively Impartial Criticism of the Life of Man*, 2 volumes. These criticisms are numerous, dealing with different religious and esoteric traditions, so we will limit ourselves here to commenting, then, only on his opinions and his criticisms of the Yoga system, more specifically, the breathing exercises and the *Kundalinī* energy, so central in yogic practice.

Before getting into the subject of criticism, it is necessary to note that, usually, the practice of criticizing the ideas and practices of rival traditions has always been very common in culture and religious life. There has always been religious rivalry. Each side thought, and still thinks, with conviction, that it was, or still is, right in the discussion, based only on belief, opinion and partisan speculation, as the impartial method of Science was not yet widespread in the past, whose difference between speculation and factual certainty is highlighted. In other words, with rare exceptions, the distinction between speculation and methodical scientific investigation with instrumentation, that is, how to impartially conduct an investigation and analysis, was still unclear to many curious people. The nature of these criticisms ranges from elaborate and elegant arguments to low-level verbal offenses. In the past, Antiquity and the Middle Ages, these arguments, in general terms, had more persuasive force than today, due to the primitivism of Science and the timidity of secular philosophies, whose ability to demonstrate the fallibility of arguments on both sides of the religious rivalry were limited. Given this, the public was unable to realize that both sides could be using accusations and arguments based on ideas that, in the future, would be considered obsolete. Anyway, to simplify, something like the popular phrase: “the dirty criticizing the poorly washed”.

This is the case of Gurdjieff's underestimation and criticism of the Yoga system, that is, both Gurdjieff's and Yoga's systems, with few exceptions, are incompatible with the current consolidated ideas of Science. Therefore, in this study below, initially, it will be pointed out how Gurdjieff's criticisms do not match what books and Yoga instructors teach, nor with what its practitioners experience, and then, in a second moment, pointing out the obsolescence and the scientific fallibility of both systems, despite the claims of compatibility with the Sciences by their followers and their admirers, since the foundations for scientific compatibility, almost all of them, are made from pseudosciences, far from recognition by the academic and scientific summits. Therefore, none of the most prestigious scientific journals (Nature, Science and Scientific American), as well as none of the most important academic publishers (Harvard University Press, Oxford University Press, Cambridge University Press, etc.), publish papers or books respectively with these, and many other fanciful pseudoscientific foundations.

The most likely reason for Gurdjieff's underestimation of the Yoga system, as well as his repudiation of the practices of this Indian system, can be explained by the fact that he contacted mostly, and more intimately, the systems opposing this Indian system, namely, the Sufism and other Islamic traditions of mysticism and dance. The rivalry between Islam and Hinduism is historically



well known, since the first Muslim invasions in India, in the 7th and 8th centuries. c. e., bloody conflicts have occurred throughout history between supporters of these two religions. One of the bloodiest took place in the last century, shortly after the liberation of India (1947) from British rule, whose Hindus and Muslims faced each other in conflicts that took the lives of around half a million people, during the process of dismemberment of Pakistan and Bangladesh from Indian territory, in 1947. Therefore, in view of his close contact with Sufis, it would be consistent for Gurdjieff to develop an underestimation of the Yoga system, despite having reported that he performed yogic practices. Regarding the breathing exercise, which he heard a dervish master inappropriately call “artificial breathing”, he reported: “I practiced it according to the instructions of the yogis...” (Gurdjieff, 2002: 187s).

### **An Uninformed Dervish**

This episode took place during Gurdjieff's meeting with a dervish master (Idem: 184s), whose instructor, at first, advised Gurdjieff against his supposedly yogic practice of chewing food many times before swallowing it, claiming that this practice has harmful effects on health. Well, Gurdjieff revealed in his autobiography; “I must remind you that at that time I was an ardent follower of the famous Indian yogis and followed

very exactly all the instructions of what was called Hatha Yoga, and when I ate, I tried to chew my food as completely as possible” (Idem: 185). However, the curious thing is that this practice of prolonged chewing is not emphatically advised by Yoga instructors<sup>4</sup>, nor is it common in books on yogic discipline. This practice is common among Chinese Macrobiotics practitioners.

In a second moment, the uninformed dervish master advises Gurdjieff against his “artificial respiration” practices, citing reasons that we will discuss below. Well, before commenting on the main dissuasions highlighted by this dervish, it is necessary to clarify that, from a yogic point of view, the practice of controlling breathing, known in the Yoga tradition as प्राणायाम (*prāṇāyāma*), cannot be “artificial breathing”, since we do not usually breathe naturally, so it is our habitual breathing that is “artificial”, as it is tense breathing, as natural breathing is relaxed breathing. Therefore, the practice of relaxation must be performed before starting *prāṇāyāma*, so that the practitioner learns, with successive training, to replace tense artificial breathing with relaxed natural breathing. Swami Niranjanananda Saraswati explained: “The first step in *prāṇāyāma* is to adjust the rhythm of

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<sup>4</sup> Very rarely it is possible to find a Yoga practitioner instructing someone to chew 108 times before swallowing the food, this is a sacred number in Hinduism, many mantras are repeated 108 times.

breathing. A slow, gentle rhythm usually indicates a relaxed state of body and mind. Irregular breathing usually means tension. In anxiety, breathing is shallow and accelerated; in irritation it is short and forced; in distress it is arrhythmic and breathless; and in depression it is sighing. Irregular breathing is also associated with neuroses and disturbed mental states. It has already been observed that exhalation (of air) is uneven and incomplete in certain types of neurosis. On the other hand, slow, rhythmic breathing creates feelings of relaxation, alpha brain waves, and reduced muscle tension. Breathing rhythms are related to brain rhythms, heartbeats, muscle tension, mental and emotional rhythms, hormonal and enzymatic rhythms, sleep and wakefulness, all with varying frequencies and intensities. (...). Pranāyāma leads to the awakening of a rhythmic force within the body and mind. When one becomes aware of the body's vital cycles, one begins to function more optimally. Simultaneously, the mind can be trained to control these forces, thereby opening up areas of consciousness that are beyond normal perception and control" (Saraswati, 2009: 111-2).

B. K. S Iyengar classified four types of breathing, according to the lung capacity to absorb air, the first three are partial breathing and the fourth is total breathing:

- a) Loud or clavicular breathing, when the muscles in the neck activate mainly the upper parts of the lungs.
- b) Medial or intercostal breathing, when only the central parts of the lungs are activated
- c) Low or diaphragmatic breathing, when only the lower parts of the lungs are activated.
- d) Total or prāṇāyāmic breathing, when the entire lungs are used to their fullest capacity (Iyengar, 1993: 21).

The first three correspond to our untrained, habitual and tense breathing, the fourth is trained and complete breathing, which is why it is more relaxing. The latter is achieved through abdominal breathing, Yoga practitioners learn to breathe using the maximum capacity of the lungs to absorb air, through the dilation and contraction of the abdomen during inhalation and exhalation of air respectively, so that the inspired air fills all of the lungs, slowly and deeply, so that the air is not absorbed by just one part of the lung. The feeling of relaxation, through abdominal breathing, can be felt by the practitioner during the first exercises, as the relief of forced and tense breathing is easily noticed. He also taught how to remove tension: "First learn to relax the back of the body from the trunk to the neck, arms and legs. Then relax the front part of the body from the pubis to the throat, where emotional disturbances occur, and then from the neck to the crown of the head. In this way, learn to relax the entire body" (Iyengar, 1993: 246).

What's more, "When the facial muscles relax, they release tension on the organs of perception, that is, the eyes, ears, nose, tongue and skin, thereby reducing tension in the brain. When tension is reduced, the sadhaka (disciple) achieves concentration, equanimity and serenity" (Idem: 15). The mere perception of habitual and irregular breathing is enough to understand its artificiality. Swami Niranjanananda Saraswati observed: "Conscious breathing has a calming effect on the mind. Even simply noticing your breath, without exerting any control over your natural breathing pattern, will induce a relaxing, regular rhythm of breathing. This is an effective method of quieting a tense mind" (Saraswati, 2009: 111). Therefore, the brief explanation above is enough to understand that the name "artificial breathing" for the preparatory exercises for prāṇāyāma is inappropriate, since, contrary to what the dervish master instructed, it is automatic breathing, which we practice habitually in our routine, which is artificial, incomplete, tense and irregular.

Now, observe the dervish master's direct opposition to the teachings of Yoga, dissuading Gurdjieff from continuing with his "artificial breathing" practices: "When you breathe in the ordinary way, you breathe mechanically. The organism, without you, absorbs the amount of substance it needs from the air. The lungs are constructed in such a way that they are used to working with a defined amount of air. But if you

increase the amount of air, the composition of what passes through the lungs is changed, and the subsequent internal mixing and balancing processes must inevitably be changed as well. Without knowledge of the fundamental laws of respiration, in all their details, the practice of artificial respiration must inevitably lead, very slowly, but no less certainly, to self-destruction” (Gurdjieff, 2002: 188). A practitioner of *prāṇāyāma* would readily contest this observation above, justifying that it is unreasonable to consider that ordinary and automatic breathing, carried out in an incomplete and irregular manner, with tension and superficiality, therefore short, forced, arrhythmic, panting, stressful and sighing, is more healthy than relaxing, regular, deep breathing, free from tension and emotional disturbances, taught by yogis as preparation for *prāṇāyāma* and meditation

In the second half of the 19th century, when this dialogue occurred, knowledge about air and the respiratory system was precarious, compared to today, even among scientists of that time, now imagine the scientific precariousness of a dervish, without a scientific background, trying to teach about this subject. So, this dervish's teaching on artificial respiration, which will be commented below, is what we today call “conjecture”, since he did not cite examples or scientific evidence in favour of what he argued, therefore pure rhetoric without foundation. . And he continued with his opinion, pointing out more harm in the practice of

what he called artificial respiration: "You must keep in mind that, in addition to the substances necessary for the body, the air has others that are unnecessary and even harmful. Thus, artificial respiration, that is, a forced modification of natural respiration, facilitates the penetration into the organism of these numerous substances in the air that are harmful to life, and at the same time, it disturbs the quantitative and qualitative balance of useful substances" (Gurdjieff, 2002: 188). Now, if there are substances harmful to the body in the air, it will not be the breathing exercise that will be the cause of such damage, but rather the quality of the air in the environment where someone is breathing. He did not specify which substances are harmful and which are useful substances in the air. Depending on the quality of the ambient air, the yogis advice that breathing practices be carried out at times when the air is cleaner, that is, before sunrise or at night. This is one of the reasons why monasteries and meditation ashramas are built in places far from urban areas, that is, for silence and fresh air. Although it has been practiced for centuries, there is no record of a case in which the practitioner of preparatory exercises for prāṇāyāma was harmed by the practice in a fresh air environment, which is why the dervish did not cite examples. On the contrary, the practice is so beneficial that, little by little, it is being introduced into the medical treatments of some diseases as a supplement to the main treatment, by state health

networks. This is already happening in some Health Departments and in the Unified Health System in Brazil.

And he continued: “Artificial respiration, that is, a forced modification of natural respiration, facilitates the penetration into the body of these numerous substances in the air that are harmful to life...” Now, in the same way, the lungs do not have a sensor, something like a selector, to facilitate or obstruct everything that is inspired, they only have dust filters, through the nasal cilia and in the trachea. So, if the ambient air contains more carbon dioxide and less oxygen, which are able to pass through the nasal cilia and trachea, then the lungs will absorb more carbon dioxide and less oxygen, and vice versa. Once again, the fault is not the breathing exercise, but rather the quality of the environmental air breathed. So, even those who do not practice breathing exercises will also be affected by poor ambient air quality.

After issuing some obscure scientifically unfounded relationships between the organs of the human body, such as: “Artificial respiration also disturbs the proportion between the sum of food obtained from the air and the sum obtained from all our other foods. Therefore, when increasing or decreasing the intake of air, you need to correspondingly increase or decrease the sum of other species of food, and to maintain the correct proportion, you need to have a full understanding of your organism.” Yoga instructors and books



prescribe a specific diet for the practitioner of prānāyāma, adaptable and restrictible according to the stage in which the practitioner is working. He then went further still: “Numerous evils arise from this artificial respiration alone. In many cases, it leads to enlargement of the heart, compression of the trachea, or damage to the stomach, liver, kidneys, and nerves. It very rarely happens that someone who practices artificial respiration does not harm himself irreparably, and this rare case only happens if he stops the practice in time. Anyone who does this for a long time invariably has deplorable results” (Gurdjieff, 2002: 189). Well, prānāyāma, which this dervish inappropriately called “artificial respiration”, as we previously contested, has been practiced for centuries, even after this long time, we do not find in the medical literature mentions of those who were harmed by this practice, as long as it was practiced under the guidance of an experienced instructor in a clean air location. Quite the contrary, as we have already mentioned, the practice is recommended by doctors, accompanied by relaxation and meditation exercises. In short, prānāyāma improves breathing, calms the mind, complements relaxation and prepares for meditation.

Saying everything this dervish said and contested, without specifying examples, without presenting evidence and without including scientific findings, is more rhetorical preaching than reasonable argumentation. Something like

teaching a scientific subject through a religious mindset, through the authoritarian imposition of personal convictions. Well, where are the examples, in hospital records and medical literature, that breath control practitioners have had cases of “enlargement of the heart”, of “compression of the trachea”, of “damage to the stomach, liver, kidneys and on the nerves”? To speak with so much authority, was he based on any medical survey? Now, if the yogic breathing exercise caused so much harm, medical consultations, hospital admissions and medical literature would be full of records of these cases, facts that would even be news and cause for press reports, since the number of practitioners, around the world, was big and, now, even bigger than in the past, due to the increase in the popularity of Yoga.

The arguments in defence of yogic breathing practices above were extracted from what Yoga practitioners teach and from the scientific knowledge we have today about the nervous system, breathing, air quality, the environment and the organism in general. Therefore, just because the dervish's arguments do not agree with current scientific findings does not mean that we should, on the other hand, be led to believe in the veracity of all yogic theories and in the complete efficiency of prānāyāma practices, as well as in everything that is taught on the topic. Therefore, in the same way that the dervish master

issued arguments that are not scientifically proven, the theories and practices of Yoga, with a few exceptions, also do not present scientific support in everything they teach, since the majority of the speculations published and the evidence presented, on both sides (Yoga and Sufism), it is understood today as belief and pseudoscience, despite the affirmative insistence of their defenders. In other words, both sides preserve their few successes and, at the same time, accumulate their many mistakes, in contrast to the more consolidated scientific ideas subsequently found about breathing.

### **The Kundalinī Energy Perceived in Reverse**

Also, to understand the yogic themes commented on and, even in some passages, mocked by Gurdjieff, it is necessary to always keep in mind the influence of Islamic rivalry with Hinduism, as already noted above, which he absorbed from his contacts with Sufism. The Kundalinī energy, so sacred to yogis and tantrics, was understood as an organ, rather than a latent energy, so mockingly nicknamed “Kundabuffer”, a term invented by Gurdjieff, which combines the first letters of the term Kundalinī with the English word “buffer” (shock absorber, bumper), so that we can conjecture that the intention was to convey the idea that this Kundabuffer organ was installed in man in order to dampen or neutralize the shocks

so necessary<sup>5</sup> for spiritual awakening of man, a theme so central to the teachings and practices of the Fourth Way, as narrated in his satirical book *Beelzebub's Tales to his Grandson: An Objectively Impartial Criticism of the Life of Man. Life of Man*).

Regarding the installation of the Kundabuffer organ (Kundalinī) in men, in a distant past, Gurdjieff satirized as follows: "... the Highest Commission<sup>6</sup> then decided, among other things, provisionally, to implant in the common lives of three-brained beings<sup>7</sup> a special organ with a property<sup>8</sup> such that, firstly, they would perceive reality upside down and, secondly, that each repeated impression from the outside should crystallize in them the impression that would produce factors to evoke in them the sensations of pleasure and enjoyment. (...) ... they made three-brained beings grow, in a special way, at the base

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<sup>5</sup> In Gurdjieff's teachings, these are the psychological shocks necessary to awaken the sleeping man from his waking sleep.

<sup>6</sup> An imaginary commission of spiritual guides from Earth.

<sup>7</sup> These are the sleeping beings, those who have not yet awakened the fourth brain, that is, the Objective Consciousness. The three brains are: the Motor Centre, the Emotional Centre and the Intellectual Centre, predominant in those who have not yet awakened the Fourth Centre, through the development of Self-Consciousness.

<sup>8</sup> The main property of this organ was the power of fantasy and imagination, that is, the property of keeping man "dreaming awake", according to the language of G. I. Gurdjieff's Fourth Way.

of their spinal columns, at the root of their tail,<sup>9</sup> which they also, at that time, still possessed. (...) ... And this something they then called at the beginning 'the Kundabuffer organ'. (...) ...you should know about the various manifestations of the three-brained beings of that planet, not only during the period when this Kundabuffer organ existed in their lives, but also during the later periods when, although this impressive organ and their properties had been destroyed in them, nevertheless, due to many things, the consequences of their causes had begun to crystallize in their lives" (Gurdjieff, 1973: vol. I, 88-9).

Metaphorizing about a fictitious leader and an imaginary community, Gurdjieff added more mockery to the Kundabuffer, attributing harmful consequences to those endowed with this evil organ:<sup>10</sup> "But, as I have already said, the aforementioned consequences of the Kundabuffer organ, which had at that time been entirely crystallized in some of his subjects he had to employ every possible species of threat and risk in

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<sup>9</sup> Reference to कुण्डलिनी (Kundalinī) which, according to texts and Yoga practitioners, is located dormant at the base of the spine.

<sup>10</sup> Tantra Yoga books and others have never referred to कुण्डलिनी (Kundalinī) as an organ, but rather as a dormant energy that can be awakened with Yoga practices, after purification of the नाड्यः (nādyah, plural of नाडी nādī - channel energy).

order to extract from each one everything that was required for the greatness of the community entrusted to him. (...). The subjects of that community, especially, of course, those in whom the sad consequences of the properties of the Kundabuffer organ had already been crystallized, not only ceased to pay into the treasury of King Appolis what was charged, but they themselves began gradually to take it back what had been deposited before" (Idem: 114). Firstly, it is necessary to clarify that this Kundabuffer (Kundalinī) is inappropriately called an "organ", because for yogis, Kundalinī is a latent energy in the organism and not an "organ", as will be analysed later.

It would be extensive to mention all the metaphorical mockery that Gurdjieff made about Kundalinī (Kundabuffer) in this extensive work of his mentioned above, therefore, next, we will limit ourselves to the more serious and more didactic approach to the subject found in *In Search of the Miraculous: Fragments of an Unknown Teaching*, a collection of lectures by G. I. Gurdjieff brought together by his important disciple, later a dissident of the institution, but not of the ideas and practices, P. D. Ouspensky. In a more didactic way, he expressed his opinion about Kundalini like this: "In so-called 'occult' literature, you have probably come across the expression 'kundalini', 'the fire of kundalini' or the 'serpent of kundalini'. This expression is often used to designate some kind of

strange force, which is present in man and which can be awakened. But, none of the known theories provide the correct explanation of the strength of kundalini. Sometimes it is related to sex, with sexual energy, that is, with the idea of the possibility of using sexual energy for other purposes. The latter is entirely wrong, because kundalini can be in anything. And, above all, kundalini is not something desirable or useful for the development of man. It is very curious how these occultists have taken possession of the word from somewhere, but have completely altered its meaning, and from something terrible and very dangerous, they have transformed it into something hopeful and desired as something blessed.”

“In reality kundalini is the power of imagination, the power of fantasy, which takes the place of the real function. When a man dreams instead of acting, when his dreams take the place of reality, when a man imagines himself to be an eagle, a lion or a wizard, it is the force of kundalini acting in him. Kundalini can act on all (psychological) centres, and with its help all centres can be satisfied with the imagination instead of the real. A sheep that considers itself a lion or a wizard lives under the power of kundalini. Kundalini is a force placed in men in order to maintain them in their current state. (...) Kundalini is a force that keeps you in a hypnotic state.

Awakening for man means being dehypnotized” (Ouspensky, 1957: 220).

Firstly, what must be observed is the fact that the descriptions and explanations about Kundalinī in books and reports of yogis' experiences, when critically analysed, are sometimes coincident and sometimes divergent from each other, as are the items related to it, such as the Nādīs, the Chakras, the Prānas, etc., as they differ in nature, location, function, form and number. For example, regarding the number of nādīs, the texts differ as follows. The Varāha Upanishad states that the nādīs penetrate the body from the soles of the feet to the crown of the head (Iyengar, 1993: 32). The Kshurikā Upanishad (verse 17), <sup>11</sup>the Brahmaidyā Upanishad (verse 12), the Hatha Yoga Pradipika (III.123) and the Goraksha Samhitā mention the existence of 72 thousand nādīs (energy channels – prāna) in the body, the Prapanchasara Tantra provides the number is 300 thousand and the Shiva Samhitā states that 350 thousand nādīs emerge from the hip centre (chakra) and that 14 of them are important (Saraswati, 2009: 37). The Kshurikā Upanishad, verse 15, mentions that 101 nādīs are the best of them and the Chandogya Upanisad

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<sup>11</sup> This upanishad mentions, in this same verse 17, through a strange metaphor, trying to convey an idea of support, that the Sushumnā channel (the main nādī) is the pillow (तैलिल - taitila) on which the 72 thousand nādīs rest.



(VIII.06.06) mentions that 101 nādīs (शतं चैका च हृदयस्य न ाड्यः – shatam chaikā cha hrdayasya nādyah) come from the heart (hrdaya).

Furthermore, another complicating factor, in addition to the divergences in the original Sanskrit texts, is the discrepancy in the translations into contemporary languages. Some translators try to use modern terms and, sometimes, scientific language, with the intention of attributing current and scientific character to the ancient themes of Yoga, most blatantly we find comparisons and correspondences between the current physiological knowledge about the nervous system and the imaginative supernatural physiology of Yoga, in translations of ancient works composed in Antiquity or the Middle Ages. The hasty use of contemporary terms leads some translators to commit anachronisms in translations, such as mentioning ideas and objects that did not exist in the past. For example, the translation of the ancient Sanskrit term विद्या (vidyā) as “Science” is problematic, given the transformations that the concept of science has undergone over the centuries. That is why books and articles with the titles of “The Science of Yoga”, “The Science of Prāṇayāma”, etc. abound. Therefore, what is understood by science today is very different from the ancient Hindus’ idea of science. By translating vidyā as science, the reader or listener is led to think that the knowledge of the primitive science of

the ancient Hindus was similar to that of modern science, with all its countless later discoveries, with all the current technological instrumentation, with the same sophisticated laboratories, with the same methodological rigor, etc. So, the current reader is led to believe that the ancient Hindus knew about the Big Bang, black holes, DNA, Quantum Mechanics, stem cells, dark energy, the Genome, the Theory of Relativity, etc., above all, when the translation “Science of the Whole” is used, very common in Hindu and esoteric books.

Another problematic example is the frequent use of the term “Philosophy” to translate or interpret what, according to the current conception, is pure speculation of the ancients. Therefore, many translators and interpreters of ancient Hindu texts confuse “Philosophy” with “Speculation”, usually when translating the term दर्शन (Darshana), which literally means “vision” or “perception”, therefore better translated as “world view” resulting of speculation and conjecture. Traditionally, the term is attributed to the Six Hindu Speculative Systems<sup>12</sup> (Nyāya, Vaisheshika, Sāṃkhya, Yoga, Mīmāṃsa and Vedānta). Thus, we often find books and articles with the title of “Indian Philosophy”, which would be more accurate to call them “Indian Speculation”, since they have very little debate, and the debate is inseparable from

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<sup>12</sup> More commonly translated exaltedly as “Six Systems of Hindu Philosophy”.

Philosophy. Well, we know that Philosophy is a practice that has undergone many changes in its concept over the centuries, it was so different in Classical Greece, different in the Middle Ages, different in the Modern Age and even more different in the Contemporary Age. So current Philosophy is very different from what the ancient Hindus speculated. Anyway, with these anachronistic translations, interpretations inevitably differ from one author to another, as well as from one instructor to another.

Returning to the subject of Kundalinī, trying to extract from what is most consensual among authors and practitioners, the identification of Kundalinī with the imagination, pointed out by Gurdjieff, is non-existent in tantric texts and Yoga texts, as we will see, since Kundalinī is, strictly speaking, the opposite of imagination or daydreaming, since absolute control and total silence of thoughts are necessary to awaken it: He said, "In reality kundalini is the power of imagination, the power of fantasy, the which takes the place of the real function. When a man dreams instead of acting, when his dreams take the place of reality, when a man imagines himself to be an eagle, a lion or a wizard, it is the force of kundalini acting in him." And further on, a comical example: "a sheep that considers itself a lion or a wizard lives under the power of kundalini". Now, a sheep that imagines itself to be a lion or a wizard would need a human brain, with a developed frontal

cortex, since a sheep's brain does not have this developed brain region. What Gurdjieff did was to confuse Kundalinī with the association of prāna with chitta, which causes चित्तवृत्ति -chitta vṛtti (mental modification, diversion of attention, mental operation or transformation of thought). Patanjali defined Yoga as follows: योगश्चित्तवृत्तिनिरोधः – yogashchittavṛttinirodhah (Yoga Sūtra, I.02), that is, Yoga is the “suppression of mental modifications”, that is, the achievement of total concentration in order to achieve समाधि - samādhi (trance). Gurdjieff confused the inseparable association between prāna energy and chitta (mind). The Hatha Yoga Pradipika (II.02) states that “when prāna moves, chitta (mental force) moves. When prāna is still, the chitta is also still. Through this (the firmness of prāna), the yogi attains firmness and should thus retain vāyu (air).” Swāmi Muktibodhānanda explained it this way: “Prāna and the mind are intrinsically linked. The movement of one means the movement of the other” (Muktibodhānanda, 2006: 150). B. K. S. Iyengar wrote: “Chitta and prāna are in constant association. Where there is chitta, there prāna is also present and where prāna is, chitta is also present. The chitta (mind) is similar to a vehicle driven by two powerful forces, prāna and vāsanā (desires). It (the mind) moves in the direction of the most powerful force. (...). If breath control (prāna) prevails, then desires are controlled, the senses

are kept under control and the mind is calmed” (Iyengar, 1993: 13). In other words, when the prāna (breath) is agitated, for example, due to irregular breathing or excessive physical exertion, the mind also becomes agitated, and when the mind is agitated, for example, due to some emotional or nervous reason, the prāna (breath) becomes agitated too. When we sleep, the rate of breathing slows down considerably. And Gurdjieff also said, “when a man imagines himself to be an eagle, a lion or a magician it is the force of kundalini acting in him”. More precisely, this is not imagination, but delirium, imagination is not exactly the same as delirium, as imagination is a more comprehensive experience and has a beneficial side, namely, creativity, there is no creativity without imagination, a need for other. On the other hand, delusion is “the erroneous conviction based on false conclusions drawn from the data of external reality”, this experience may include imagination, but the experience of imagination is more comprehensive than the experience of delirium. Someone who creates a very formidable and useful invention needed imagination to create it, but he didn't need to be delusional. Finally, as the yogis teach, to awaken Kundalinī, it is necessary, without fail, to suppress the movement of the mind (chittavrtti) and, consequently, the imagination, therefore the opposite of what Gurdjieff “imagined”.

## **The Lunar Gods and Goddesses**

Ancient people developed a curiosity about the Moon that differentiated it from the Sun. While the Sun rises, reaches its peak in the middle of the day and then sets, without changing its shape or brightness, the Moon, in turn, appears from the darkness, grows slowly (Crescent Moon) until it reaches the shape of a silver disk (Full Moon) and then gradually decreases in size (Waning Moon), until it disappears again for three days (New Moon). These phenomena were intriguing to the ancients. Very peculiar to almost all ancient people, the attempt to explain the origin and role of the Moon was through the creation of myths. So humanity perceived in these mutations of the Moon the very reproduction of the cycle of its life: because man is born, grows, reaches adulthood, ages and then dies. Thus, this monthly cycle of the Moon exerted a fascination on man's imagination. Consequently, for thousands of years, a vast, confusing, fanciful, rich and changeable mythology developed around the Moon among different peoples on Earth, based on personifications and mythological representations of the Moon through gods and goddesses. Then, one received personality, they attributed powers, desires and feelings to it, and finally, they worshiped it through rites and festivals. The Moon became a revered religious deity. While some people personified the Moon in the form of gods, other people personified

it in the female form, as goddesses. These mythologies tried to explain what happened in heaven. For example, one of the oldest divine representations of the Moon was that of the Mesopotamian god Sin (Nanna), worshiped since five thousand years b. c. e., in the Mesopotamian city of Ur, as a lunar god.

The ancient Egyptians also represented the Moon through the god Khonsu, the Egyptian god of the Moon, who is represented with the head of a falcon, adorned with a disc of the full moon and the crescent moon. Thoth is also sometimes mentioned as a lunar god, which is why he is, in some images, depicted with a lunar disk over his head. The Greeks personified the Moon through the goddess Σεληνή - Selene, also identified with Ἄρτεμις - Artemis, another name for the Moon goddess was Κυνθία (Cynthia). Πανδία - Pandia, daughter of Selene and Zeus, represented the phases of the Moon. The Romans worshiped Diana, the Roman goddess of the Moon, derived from the Greek Artemis, who was later identified with Luna, the ancient lunar goddess. Also, Juno, the Roman personification of the lunar cycle. For Hindus, चन्द्र - Chandra is the Moon itself and its representation as a god, since in Hindu mythology the Moon is male, as well as there is a host of gods, goddesses, kings and heroes belonging to the lunar dynasty. Regarding the origin of the Moon, mythological texts differ. Rg Veda 1977: 60). Vishnu Purāṇa I.09 mentions that the Moon

(Chandra) was created during the Condensation of the Ocean of Milk, a myth that states that the world was created from the condensation of the ocean (Stutley, 1977: 60). The Shatapatha Bhrāmana IX.01.02.39, through a somewhat incomprehensible statement (perhaps confusing wording or difficulty in translation), states that “the Yajñāyajniya (sacrifice) undoubtedly is the Moon, for whenever a sacrifice becomes completed, the essence of your offerings rises to him<sup>13</sup> (the Moon); and since, sacrifice after sacrifice (yajna), ascends to him, the Moon is the Yajñāyajniya, he thus makes the Moon his (Agni's) tail, and this tail of his he thus makes invertebrate and immortal” (Eggeling, 1993: part IV, 179). In another clearer passage of the same text (VI.01.02.04), the origin of the Moon is described more lucidly: “He (Prajāpati) wished: May this multiply, may this reproduce. Through the Sun, he entered into union with Heaven, whereupon an egg emerged. He touched him, saying ‘sprout your seed’. From her (the seed) the Moon was created, because he (the Moon) is a seed. And the tear that formed became those stars...” (Eggeling, 1993: part III, 149; Stutley, 1977: 60 and Hillebrandt, 1980: vol. I, 198).

Hindus worship the Full Moon (पूर्णिमा – Pūrṇimā), one of the main festivals is वैशाख पूर्णिमा -

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<sup>13</sup> चन्द्र - Chandra (Moon) in Hindu mythology is a masculine noun.



Vaishākha Pūrṇimā, corresponding to the Full Moon of April/May, which marks the beginning of the New Year in many regions of India. The god Shiva is represented with a crescent moon next to his forehead. Chang'e is the Chinese goddess of the Moon. These are just some of the many mythological representations of the Moon, in some of the most developed cultures of Antiquity, enumerating them all, including the smaller cultures, requires much more space here, therefore for details more complete and in-depth, see: Stroud, 2009: 114-36.

## **Lunar Myths**

Myths about the Moon abound in fantasies in ancient cultures. A Chinese myth about a distracted creator, who forgot to place the Sun and Moon in the sky, reports that “in the beginning nothing existed, only chaos. Then Pan Ku was born, the son of Yin and Yang, the dual powers of nature. For 18 thousand years, he created the universe, the Sky, the Moon, the stars, and the Earth. But he forgot to place the Sun and Moon in the Sky. Instead, they went to the Sea of Han, leaving the world in darkness. The Administrator of Time was sent by the Earthly Emperor to make the Sun and Moon move across the heavens, but they refused. In the end, Buddha intervened. He ordered Pan Ku to write the character of Sun on his left hand and the character of Moon on his right

hand. He was then instructed to go to the Sea of Han and raise his right hand to invoke the Sun and his left hand to invoke the Moon. He performed the ritual seven times. The Sun and the Moon took their places in Heaven, and divided the darkness into day and night” (Stroud, 2009: 137-8).

In Hinduism, even broader than the mythology of Chandra is the mythology of सोम - Soma<sup>14</sup>, sometimes called सोमदेव - Somadeva, whose identification with the Moon also occurred (see: Stutley, 1977: 59—60 and 284; Hillebrandt, 1980: 185-207 and wisdomlib.org). This identification is made thus in Shatapatha Bhrāmana I.06.04.05: “The gods said: ‘Nothing except Soma will satisfy him (Prajāpati), let us prepare Soma for him. They prepared Soma for him. Now, this soma, the food of the gods, is none other than the Moon...” And he continued informing what the Moon does when it does not appear in the sky: “...when it (the Moon) is not seen at night, whether in the east or in the west, then he (the Moon) visits this world (of men) and there he (the Moon) enters the waters and the plants...” (Eggeling, 1993: part I, 176-7 and Hillebrandt, 1980: vol.I, 197-8). In the Creation Myth of Rg Veda X.90.13, the following is mentioned about the origin of the Moon and other components of the universe from the Purusha (the Cosmic Man): “the Moon was born from his mind. From his eye the

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<sup>14</sup> सोम - Soma is also a masculine name.

Sun arose...” (Brereton and Jamison, 2014: vol. III, 1540). In India, as in other regions, it is generally believed that certain phases of the Moon are propitious and others are malefic. The Full Moon destroys darkness and is therefore benevolent. On the other hand, the New Moon was feared by many people in the past, as it could be a sign that the Moon needs food, which is why it is a threat (Stutley, 1977: 60).

In ancient Greece, Selene is the personification of the Moon. She is represented as a young and beautiful woman, who travelled through Heaven in a silver chariot pulled by two horses. She is also celebrated for her loves. Of all, the best-known case was as the mistress of the beautiful shepherd Ενδυμίων-Endímion, by whom she is said to have had fifty daughters. Because of her beauty, she inspired the Moon with deep love. At Selene's request, Zeus promised her a wish. Endymion chose to sleep an eternal sleep and the god put him to sleep, keeping him eternally young, so that Endymion could never leave her, upon seeing this scene, the Moon fell in love with him (Stroud, 2009: 139).

There are many myths about the Moon, those described above are only from the three main ancient cultures (China, India and Greece). If these developed people of the past produced such superstitious myths, imagine the amount and degree of fantasy and superstition in less developed cultures of that time. Rick Stroud

brought together lunar myths from China, England, Germany, Greece, Japan, North America, Nigeria, Scandinavia, Polynesia, Russia and West Africa (see: Stroud, 2009: 137-47 ).

### **The Powers of the Moon**

With divinization, there was no shortage of attributions of the Moon's powers over the life and destiny of beings, as well as over nature and the Earth. Like other areas of knowledge, astrology made use of the beliefs prevailing in Antiquity, about the divine powers of the Moon, to place it at the centre, together with the Sun, of influences on the destiny of humanity. In general terms, according to astrology, the Moon represents emotions, instincts and the feminine principle. She rules the sign of Cancer, her day of the week is Monday and her element is fire. Astrologers baselessly claim that the Moon in Cancer makes people emotionally tenacious, making them moody, easily upset, or offended. This is also the time when people feel like eating and drinking too much. Astrology manuals list long lists, with descriptions, of characteristics and behaviours suitable for this moment. Monday is an ideal day to cast spells using the powers of the Moon and fire is used in lunar magic.

By way of example, an astrological work of strong influence in late Antiquity and the Middle Ages, until the Scientific Revolution, when it was

overturned by Copernicus' heliocentric theory, is the book *Matheseos Libri VIII*, authored by the astrologer and lawyer Julius Firmicus Maternus (4th century c. e.), written around the years 334-7 e. c., is considered "the largest astrological compendium of late Antiquity" (Von Stuckrad, 2007: 126). In this work, he enumerated and justified some of the powers of the Moon. However, the account of his biography points out that, after writing the work above, he, who lived during the reign of Constantine (306-37 c. e.), converted to Christianity, then took a completely radical position, becoming "a fierce enemy of any form of astrology" (Von Stuckrad, 2007: 126). Even so, his astrological work was very influential in later centuries, as it brought together the astronomical and astrological knowledge achieved until then.

Of the powers of the Moon, extracting here only the most curious passages, he wrote. "The entire essence of the human body is related to the power of that deity (the Moon). (...) After the formation of the body, the Moon, through its path, maintains the shape of the already formed body. Therefore, we must carefully observe the movements of the Moon in order to explain the entire essence of the human body. (...) We must know how the Moon performs and cares for the human body, and what was attributed to the power of the Moon. Because, we feel in our bodies the increase of the waxing Moon and the decreases of its waning. The innermost parts of the human body

grow when the Moon grows, and when it (the Moon) begins to lose its light, they wane, fatigued in the body, when they grow again, their power of growth floods back. (...) The entire essence of the human body is governed by the power of the Moon. Since it (the Moon) is located in the inner regions of the heavens, because of its proximity, power has been attributed to it over the Earth and over all bodies animated by the breath of the Divine Mind. (...) From different elements, she (the Moon) builds the human body, and once conceived, she dissolves it back into its elements" (Matheseos Libri VIII, Book 8; Bran, 1975: 118-9).

Despite the obscurity of the passages above, it is possible to perceive the astronomical primitivism of the notions about the moon at that time, even in a work that became a reference in the following centuries. Overloaded with mythological and religious influences, consequently the attributions of powers to the Moon were much greater than could be scientifically confirmed in the following centuries. There is no doubt that it would be natural, due to the highlights in the sky, that ancient people were fascinated by the Moon and the Sun, just as we are fascinated today when we look at the sky. So, unlike later notions, the Moon of Firmicus not only governed human destiny, but also had the power to create and destroy the human body: "From different elements, it (the Moon) builds the human body, and once conceived, it dissolves it back into

its elements.” As well, it had the power to “maintain the shape of the already formed body”, that is, the Moon had a power to sustain the body. The Moon also “takes care of the human body”. As for current knowledge about the power of the Moon, we know demonstrably that the Earth and the Moon exert reciprocal gravitational influences. The most noticeable of the Moon's influences on the Earth is the movement of the tides. Now, the intriguing thing is the fact that these primitive astronomical notions still convince some recent or current religious and esotericists, even in the face of the advanced astronomical knowledge about the Moon achieved since the 20th century, as we will see later in the superstitious notions of G. I. Gurdjieff over the Moon.

## **Pseudosciences and Superstitions**

If investigated since prehistoric times and in all peoples of the past, the beliefs and superstitions about the Moon are countless, as well as its practical side, magic. Given this dizzying picture, only a few examples in the most involved areas will be enumerated and briefly described below, so that the reader will have a summary notion of the high degree of credulity in the powers of the Moon among people in the past, and with few exceptions, to the persistent belief in recent individuals, such as the example of G. I. Gurdjieff's anti-scientific notions about the Moon.

Astrology: this is, together with religion, the oldest speculation, still surviving, despite changes over the centuries (Van Stuckrad, 2007), about the destiny of men, it was very influential in ancient and medieval culture until the period of the Scientific Revolution in the 18th century c. e. From being culturally influential in the past, it is currently considered the oldest pseudoscience still alive. Most authors are of the opinion that Astrology originated in Mesopotamia in the second century b. c. e. It is. The curiosity is the fact that those who read Astrology books for the first time are impressed by the abundant and sophisticated use of mathematics (a formal science) in astronomy calculations (a material science) by astrologers. Many astrologers were excellent mathematicians, and some still are, since astrology requires a lot of mathematical calculations. That is, a sophisticated and rigorous use of mathematics, but based on a precarious knowledge of the sky. So that, even today, those who are not familiar with the advances in knowledge of current astronomy are convinced that astrology is in fact a science, due to the high degree of mathematical and geometric skill employed by astrologers. The geocentric model is still used today. Mathematics was an advanced formal science among the most cultured people of Antiquity (China, India, Greece and Rome).

Astrology is the oldest pseudoscience still alive. Almost all people in Antiquity were interested



in astrology as credible knowledge. Many religions of the past have engaged in the art of fate prediction. In Mesopotamia, it was developed by priests. In India, Hinduism still uses astrology in its religious calendar. In the past, Antiquity and the Middle Ages, astrology was mixed with astronomy. For example, Claudius Ptolemy (100 – 170 c. e.), the great astronomer of Antiquity, argued that astronomy and astrology complemented each other. In the third book of his astronomical work *Tetrabiblos*, he argued that the character of the individual is formed at the moment of conception and this character is influenced by the position of the planets. The father's influence will be governed by the Sun and Saturn, and the mother's influence by Venus and the Moon. The astrological work of Claudius Ptolemy presented the seeds of modern astrology. He used a lot of mathematics and geometry in his astronomical calculations. In a certain way and with caution, it is possible to say that astrology was the precursor of modern astronomy, just as, to a certain extent, alchemy was the precursor of modern chemistry.

When drawing up the birth chart, the Moon is indispensable, which is why it is very important, since it is the closest celestial body to the Earth, which is why it moves quickly through the zodiac. For astrologers, the Moon is considered a planet, as is the Sun. Astrology in Antiquity only knew six planets: Mercury, Venus, Earth, Mars, Jupiter and Saturn. Later, other planets were incorporated with

the discoveries of Uranus in 1781, Neptune in 1846 and Pluto in 1930 (the latter is considered a dwarf planet in current astronomy). Contrary to what astronomy knows and what actually happens, they all orbit around the Earth, as well as the Sun, and in reality, only the Moon. Astrologers claim that the late discoveries of these planets do not subvert the principles of astrology and neither do discrediting them, on the contrary, they complements them.

The Moon represents the feminine principle: mother, wife and women in general. As well as, intestines, mood, tides, phases, receptivity, fluctuations, feelings, habit patterns and reflex actions. Its action oscillates and changes. It governs personal interests, desires, needs, magnetism, growth and fertility. It governs liquids, merchandise, navigation, beverage making, nursing, and merchants. The parts of the body governed by the Moon are: the chest, the stomach, the balance of body fluids, digestion, glandular secretions, the man's left eye and the woman's right eye.<sup>15</sup>

Now, what is delusional is the belief, among some more credulous astrologers, in the existence of another natural satellite orbiting the Earth, in addition to the Moon. This is the satellite Lilith

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<sup>15</sup> The lists above are not consensual, as they vary from author to author, some items coincide, others do not, I chose the items that seemed most coincidental.

(Dark Moon), which they include in their astrological calculations. According to these delusional people, the presence of Lilith in the birth chart has a strong negative influence. It governs the dark side of an individual's personality and encourages feelings of self-defeat as well as negative behaviour patterns. To this day, books and almanacs are still published for readers to plan their lives according to lunar cycles, a sign that there are still many people who still believe in the influence of the Moon.

The above summary, although very brief, is enough to convey the idea of how important and influential the Moon was, and still is, for those who believe in astrology. Even with the strong blow of the Heliocentric Revolution, from the publication of *Revolutionibus Orbium Coelestium* (Of the Revolutions of the Celestial Spheres), in 1543, authored by Nicolaus Copernicus, astrology has survived to this day, albeit with changes (Von Stuckrad, 2007), but maintaining the old and outdated geocentric model of the Solar System.

Alchemy: much less than astrology, alchemy also believed in the supernatural powers of the Moon. Perhaps not as much as astrology, its origins are also remote. Throughout history, due to the diversity of their practice, it is possible to identify, among alchemists, scientists, visionaries, dreamers, charlatans, bandits and thieves. In general, it is possible to divide the history of alchemy into two phases: Chinese alchemy and

Western alchemy. The goal of Western alchemy is distillation and purification. Chinese alchemy had different goals than Western alchemy. From an overview, it is also possible to divide Western alchemy into material alchemy and spiritual alchemy. The first was concerned with: 1) transforming the vile metal (especially mercury and lead) into gold or silver and 2) preparing a universal medicine to cure all human illnesses, preserve and restore youth, and prolong life, a kind of universal medicine or elixir of long life. Spiritual alchemy sought the spiritual transformation of impure man into a perfect and superior creature. For spiritual esotericists, the latter is true alchemy, for example, this is how theosophists think. Some practices and discoveries of alchemists in the past, in the area of material alchemy, represented genuine science and, in a certain way, contributed to its progress, some have survived to this day, especially in mining. An important contribution was the invention of gunpowder by Chinese alchemists. The first confirmed reference to what can be considered gunpowder in China occurred in the 9th century c. e. And the oldest chemical formula appeared in a Chinese text written between 1040 and 1044 e. c. There are records that the Chinese have perfected the formula over the years. Therefore, historians often claim that alchemy is the precursor of modern chemistry.

Some alchemists teach that in Western alchemy, the elements (fire, earth, air and water)

govern the phases of the Moon (new, waxing, full and waning). The new Moon is ruled by the fire element, the waxing moon is ruled by the earth element, the scent moon by the water element and the waning moon by the air element. Some books from the Renaissance period mention the existence of seven Olympic Spirits, which govern 196 provinces of Heaven, with each Spirit governing many provinces. The seventh spirit is *Phul*, the lord of the powers of the Moon, he rules seven provinces, his planet is the Moon. He has the power to transmute all metals into silver, cures leprosy and favours the Spirit of Water. The angel Gabriel is also considered a guardian of the Moon. The crescent Moon and the star are symbols of Islam and appear on the flags of some countries of Islamic majority (Turkey, Pakistan and Tunisia). Anyway, unlike astrology, the Moon has less importance in alchemy.

Magic: also surrounded by so many superstitions, magic used the imaginary powers of the Moon, in the hope of achieving more effectiveness in rituals, spells and enchantments. Ancient magicians believed, and current ones still believe, firmly in the contribution of the Moon's powers to the results of magical practices. Magic uses supernatural forces to interfere with nature, the magician himself or the lives of other people. It serves to create, protect and destroy, and works through spells, incantations, rituals and invocations. As well, the magician seeks to achieve the altered states of

consciousness produced by fasting, enchantment, dancing, meditation, necromancy and drugs. The position of the Moon in the sky, the lunar gods and goddesses, as well as other resources related to the Moon are used by magicians to increase and direct magical forces and spells towards their goals. The position of the Moon, the day of the week and the time of day are important when casting the spell. The lightest spells should be cast on the waxing Moon, the strongest spells on the waning Moon, and the strongest spells of all on the new Moon. The day of the Moon is Monday. Medieval astrologers thought Monday was one of the luckiest days of the week. It is an especially ideal day for communicating with the dead and the spirit world.

The Moon exerts influence at different times of the day and night of the week. Unlike our time system, magicians count the hours of day from dawn and the hours of night from dusk. For example: on Sunday during the day, the Moon is dominant in the 4th and 11th hours of the day (from dawn), and during the night, it is dominant in the 6th hour of the night (from dusk). On Monday, the Moon has its peak influence in the 1st and 8th hours of the day, and during the night in the 3rd and 10th hours of the night. The other days of the week also have their hours when the Moon is most influenced.

In Ancient Greece, it was believed that the Witches of Thessaly (3rd-1st centuries b. c. e.),

who were known for performing a rite that attracted the power of the Moon to themselves, were believed to be capable of controlling the day and night, to walk on water and even fly. The practice of “drawing on the power of the Moon” is still carried out by the modern occult movement known as Wicca. In Wiccan culture, the Moon is revered as a triple goddess, representing the Virgin (Crescent Moon), the Mother (Full Moon) and the Crone (Waning Moon). Their rituals draw on the power of the Moon and Wicca spells are governed by the phases of the Moon. Of all their pantheon of gods and goddesses, the greatest respect is given to the goddesses associated with the Moon. Wicca congregations take place thirteen times a year on the Full Moon, when your magical power is considered to be at its peak. Other texts recommend that, before carrying out a magical practice, it is sometimes ideal to bathe with Moon Water to purify the body and mind, therefore, in lunar magic, Moon Water is used for purification. Moon Water is common water purified in the light of the Full Moon. This water is placed in a vessel, preferably silver, outside the house, under the light of the Full Moon. Leave it there for several hours before dawn. For the magician, bathing in Moon Water works as an anointing before performing lunar magic rites.

Rick Stroud also described the role of the Moon in spells, astral projection, Tarot, Palmistry, lunar animals (wolf, hare, frog, cat, cow, owl, etc.)

and in Numerology (see: Stroud, 2009: 287-93). As for superstitions, he gathered and reproduced a collection of no less than 53 superstitions, from different times and different peoples, about births, domestic superstitions, about destiny, good luck, medical, romantic and New Moon superstitions (Idem: 295 -9). Well, reproducing everything here would take up a lot of space, so I hope that the summaries above are enough to convey the idea of how much the Moon was, and still is, involved in pseudosciences, magic and superstitions. An old superstition about the Moon, which currently survives in suspense films, is that of the Werewolf, with its relationship with the Full Moon.

For current scientific psychology, the supposed and believed supernatural forces used by magicians, almost in their entirety, are effects of enchantment, persuasion, suggestion, seduction, and which is most common, credulity, therefore are psychological effects. Therefore, in many cases, it is an example of delirium or hallucination, as the effects of magic, like supernatural forces, are so far unverifiable when placed under rigorous scientific scrutiny.

### **The Moon in Ancient Medicine**

Due to the scientifically incipient mentality, as we have already mentioned here, in the past beliefs in the powers of the Moon not only spread to astrology, magic, alchemy, prophecies, etc., but



also even to the sciences, and one of them was medicine. Therefore, the combination of the mixed method of superstition and science prevailed for many centuries, in almost all areas of knowledge, until the dawn of the Enlightenment in the 17th century c. e. For example, astrology, with its interests in celestial forces and its supposed power to predict, had also an influence on the sciences, as we will see later. For a doctor in Ancient Greece might be well acquainted with contemporary theories about the nature of disease and also have long clinical experience with patients, but even so, his prognosis of the patient's survival, his decision to operate or of performing the bloodletting, it would be based on the implications of the positions of the Moon, the Sun and the stars. The physician Claudius Galen (129-201 c. e.) stated that "a complete physician should be versed in astrology," and fifteen centuries later, the English physician, naturalist and astrologer, Nicholas Culpeper (1616-54 c. e.), went even further to assert that "medicine without astrology is like a lamp without oil". Therefore, for centuries, for many doctors, astrology had its place in medicine.

Notions about the Moon, which were imagined in classical times, infiltrated Medieval Europe over the centuries as a mixture of alchemy, astrology, science and superstition. The ancient medical theories of the classical period had as their starting point the notion of man as a microcosm (miniature) of the great macrocosm

(universe). Greek authors perceived repeated patterns at all levels of the cosmos and man. The individual was not only a microcosm of the human race, but a microcosm of everything in existence. Therefore, the individual carried patterns that were in harmony with the entire universe. For them, illness occurs when this harmony is disturbed, and the doctor's task is to restore this harmony between the individual and the universe. So alchemy was a central factor and was summarized in the alchemical maxim: "what is above is like what is below, what is below is like what is above". In other words, the microcosm (the individual) is a reproduction of the macrocosm (the universe) and *vice versa*.

Limited by the scientific incipience of the time, Greek and Roman doctors believed that the Sun, Moon, planets and stars exerted an influence on everything, including plants and stones. Each part of the body was governed by a different zodiac sign. The planets influenced the orifices of the body. Plants had an influence on treatments and medicines. The 'critical days' were of great importance, they were directly related to the Moon. The Moon influenced high fever and the Sun influenced chronic fever.

The prestigious ancient physician, Hippocrates (460-370 b. c. e.), thought that the Moon had power over the entire human body. An important element in Hippocratic medicine was the idea of 'Critical Days'. These days were counted

after the first day of an illness and were related to the Moon. He wrote that “a doctor without knowledge of astrology should be called an idiot rather than a doctor.”

The Roman historian Pliny the Elder (23-79 c. e.) believed in the Moon's influence on agriculture and living creatures. Regarding the Moon, he wrote: “We may conjecture that the Moon is not unfairly observed as the star of our life, it is she who replenishes the Earth. When it approaches the Earth, it fills all bodies, while when it moves away, it empties them. For this reason man's blood is increased or decreased in proportion to the quantity of her (the Moon's) light.”

Claudius Galen (129-200 c. e.) absorbed and developed Hippocrates' ideas. Ideas of his survived to become the dominant medical theory in the Middle Ages. For him, the Moon played an important role in medicine. He also believed that the position of the Moon relative to the astrological houses at the time of illness was a clear indicator of whether the patient would live or die. He wrote: “To know the condition of the patient at the beginning of when he is ill, how long he will survive, let him look at the ascendant and the Moon...” Galen's Prognostics work is an extension of Hippocrates' Critical Days. The phases of the Moon were used to calculate the Critical Days: 7, 9, 14, 18, 21 and 28 days after a New Moon were all important times in the development and cure of the disease. If the stars align with the Moon to

produce good influences on those days, then all will be well with the patient. Galen constantly refers to the Moon in his writings. He firmly trusted that the work and observations of astrologers about the Moon were true.

### **Medicine in Medieval Times**

The great empires of Greece and Rome disappeared, but their speculations did not. They were preserved in Arabic translations, which, from the 11th century c. e. onwards were translated into Latin, consequently reintroduced in Medieval Europe. Medieval astrologers believed that the cosmos, stars, planets, Moon and Sun influenced growth, decline and seasons, thus playing an important role in agriculture and medicine. Like other sciences practiced in classical times, medieval medicine was a combination of science, prayer, astrology, spells and mysticism.

In general terms, medieval doctors believed that illness was a punishment from God, that the human body was a microcosm of the universe, that the body was made up of the four elements, earth, air, fire and water, that these elements had to be maintained in harmony so that the individual remained healthy and that the Moon was of the greatest importance in preserving this harmony. Medieval doctors shared the Greek superstition that the Moon had to be taken into consideration, not only in serious operations and bloodletting, but

also in the preparation of medicines. An influential medieval author, Isidore of Seville (560-636 c. e.), defended medical astrology and the notion that man was a microcosm of the universe. At the centre of his speculations about medicine was his conviction about the importance of the Moon.

Well, in order to avoid repetition, I will not discuss medieval medicine here, since, to a large extent, it is an extension of the ancient classical medicine of the Greeks and Romans, preserving the same superstitions. So the above summary is sufficient to point out the sources from which G. I. Gurdjieff took his obsolete notions about astronomy, that is, from the superstitious pre-scientific mentality of Antiquity and the Medieval Age. If the reader is interested in delving deeper into the subject, I recommend reading *The Book of the Moon*, by Rick Stroud, 2009, an extensive and detailed study, with more than 370 pages, dealing with the Moon from different approaches, from first speculations in Antiquity until today. Perhaps the most comprehensive book ever written about the Moon so far, easy to read.

### **Current Moon Data**

Without a doubt, we have never had as much knowledge of the sky as we have now, and we will have even more in the future, as new equipment is created and new research is carried out. Based on what was summarized above, it is

difficult to imagine the reaction of an astronomer from Antiquity or the Medieval Age, when transported to the present day and witnessing what we now know about cosmology (astronomy, astrophysics and particle physics). After so many centuries of mythification, speculation and superstition soaring across the sky, a gigantic change occurred with the creation of the telescope by Galileo Galilei (1564-1642 c. e.) at the beginning of the 17th century. This was the beginning of modern scientific astronomy.

The Moon is the only natural satellite that orbits the Earth. It was formed 4.51 billion years ago, shortly after the formation of the Earth. The Solar System is about 4.6 billion years old. Isotope dating of lunar samples indicates that the Moon was formed around 50 million years after the beginning of the Solar System. It is the brightest celestial body in the night sky. Its size is approximately  $\frac{1}{4}$  the size of Earth. The Moon has grey spots surrounded by bright silver areas. In 1609 e. c., the astronomer Galileo studied the Moon with the first telescope, which was more of a spyglass, and noticed that the grey spots looked like seas, due to the insufficiency of his telescope. He named them 'maria', plural of 'mare', in Latin, which means seas. The name remained and to this day we call these areas the same way, for example, the Sea of Tranquility, where the Apollo 11 module landed in August 1969. Now we know that the maria (seas) are, in reality, after

observation through telescopes, photographs and artificial satellites, extensive grey plains and the silvery parts are mountain areas. The Moon always has the same side facing the Earth, so the other side, dubbed the 'dark side of the Moon', was not discovered until recently. In 1959, the Soviet space probe Luna 3 circled the Moon for the first time and took photographs of its far side. In 1968, astronauts flew around the Moon for the first time. The first landing and walk on the Moon was in 1969. Five more astronaut crews have walked on the Moon, the last in 1972. On the last three trips, the astronauts used a lunar rover to explore the area around the landing site. Furthermore, in total, around 380 kilos of rocks and lunar soil samples were collected during the missions. With these samples in hand, the scientists were able, after thorough geological examinations, to estimate the age of the Moon at 4.5 billion years.

Some of the main characteristics of the Moon are:

- Diameter: 3,976 km
- Circumference: 10,921 km
- Orbital perigee: 362,600 km from Earth<sup>16</sup>
- Orbital apogee: 405,400 km from Earth
- Sidereal orbital duration: 27 days, 7 hours and 43 minutes
- Synodic orbital duration: 29 days, 12 hours and 44 minutes

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<sup>16</sup> The Moon's orbit is not absolutely round, but rather elliptical, hence the difference.

- Orbital speed: 36,800 km/h
- Gravity on the surface: 6 times less than that of Earth
- Average density: 3.344 g/cm<sup>3</sup> (0.606 less than that of Earth).
- Mass: 0.0123 of Earth
- Atmosphere: helium, argon, neon, sodium, potassium, hydrogen and radon<sup>17</sup>
- Temperature: -184°C at night and 214°C during the day, at the poles the temperature is constant: -96°C.<sup>18</sup>

On the Moon there is no life or air in the atmosphere, since it does not have oxygen, nor clouds, lightning and rain, as these are abundant on Earth. Recent research has found traces of the presence of ice at the poles. Its gravity is six times less than that of Earth, due to its smaller size and density. Density depends on the material that makes up the celestial body. Its crust was hot and molten when the Moon was young, cooling over time to become solid about 4.4 billion years ago. Like Earth, the Moon has a mantle below the crust. It has a small core inside, however, unlike the Earth, its core does not have iron, which explains the absence of a magnetic field and the proportional lower density and mass in relation to

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<sup>17</sup> Therefore, the Moon has no oxygen, which is why it has no air and no wind.

<sup>18</sup> Despite the proximity, these temperatures are so different from Earth's due to the fact that the Moon does not have an atmosphere similar to Earth's.



the Earth. There are no active volcanoes on the Moon. The surface of the Moon is formed mainly by regolith, a term derived from the Greek *regos* (blanket) and *lithos* (stone), therefore “stone blanket”, also known as “weathering cloak”, which is a layer of dust, soil, of broken rock and other similar materials, which cover a solid and fresh rock. It is present on Earth, the Moon, Mars and some asteroids and is due to cosmic erosion, commonly called atomization or weathering of rocks, resulting from the large thermal amplitude of meteor strikes and other physical processes. That's why the Moon's soil is sometimes called regolith, which was formed by meteor collisions with the Moon and the breaking of rocks into tiny particles. Many of these particles melted over time and turned into small orange glass beads. This material is very present on the Moon, since it was heavily bombarded by meteors for billions of years, hence its large number of craters. In the past it was thought that these craters were volcanoes.

Regarding the formation of the Moon around 4.5 billion years ago, the most accepted theory, among the proposals, is that a violent oblique collision with the proto-Earth,<sup>19</sup> caused by a gigantic celestial body, the size of the planet Mars, called Theia, whose debris from this impact remained rotating around the proto-Earth, due to the gravity of the

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<sup>19</sup> The Earth was still in its formative period, very different from what it is today, hence the name proto-Earth.

proto-Earth, in the shape of a ring, for millions of years, whose debris came together, until a ball was formed, due to of the Moon's rotational movement,<sup>20</sup> which ultimately resulted in the formation of the Moon. The surface of the proto-Earth was affected, but its interior was not. What most supports this theory is the fact that, after analyzing samples of lunar soil, brought back by astronauts from the Apollo missions, it was discovered that the Moon is made up of the same substances as the Earth's surface. As well as the fact that the Moon does not have an iron core, nor a magnetic field, like the Earth.

### **A Ray of Creation without “Serious Foundation”**

We know that, in accordance with G. I. Gurdjieff's theoretical and practical priorities, he did not place much emphasis on the subject of the creation of the universe, as he claimed that it was something very distant from us and what was necessary was the observation and control of the mechanicity of thought and behaviour. But even so, he risked issuing a theory about creation,

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<sup>20</sup> The fact that the Moon maintains the same side facing the Earth does not imply that it does not have a rotational movement. Because, from Earth, its movement appears stationary, but, in relation to space, the Moon has a sidereal rotational movement, since both perform an orbital movement.

which he called “Ray of Creation”. When seen from the perspective of current scientific astronomy, this denomination is not so accurate, since it would be better called Hierarchical Duplication of Mechanical Laws According to the Created Worlds, and he never explained in detail what such mechanical laws were, in order to show the low position of man in the hierarchy of the mechanical laws of the universe. Gurdjieff was a compulsive mechanist, for him almost everything came down to mechanics. 20th century Physics, especially Quantum Theory, made mechanism outdated in the scientific field. Also, his insistent emphasis on the mechanicity of human behaviour did not penetrate, with the same emphasis, in academic psychology. To elaborate his theory of the Ray of Creation, Gurdjieff did not use astronomy alone, but, in addition to the latter, he combined ideas from astrology, Plotinus' scheme, esotericism, speculative philosophy and ancient and medieval medicine. He boldly asserted that his Ray of Creation Theory is “capable of bringing together into a simple whole the multiplicity of the various and conflicting scientific, religious and philosophical opinions of the world” (Ouspensky, 1957: 82). From this utopian scope, we will analyse in the following paragraphs whether, at least, physically and astronomically, his extremely simplistic theory of the Ray of Creation is viable.

Exposed through naive simplism and extreme reductionism, his system of the Ray of

Creation is as follows:<sup>21</sup> From the Absolute emanates an infinite number of Rays of Creation, with infinite worlds, ours is one of these, with increasing numbers of orders of mechanical laws. It all starts with the Absolute<sup>22</sup>, which has only one law, its will. Then emanate all possible worlds, and from all the worlds came the stars, our sun, the planets of the solar system, the Earth and finally the Moon. These worlds exist on the Ray of Creation and differ in the number of laws under which operate. At the level of the Absolute, there is only one law, the unity of the will of creation, in the next world, there are three 3 orders of laws; in the next 6, in the next 12, in the next 24, 48 and finally 96. On our Earth, there are 48 orders of laws<sup>23</sup> under which we have to live. The last place, at the end of the Ray of Creation, is the Moon, which is governed by 96 orders of laws, therefore the worst place in the Ray of Creation, although the Earth is almost as bad, consequently very difficult to fight to free yourself from these mechanical laws (Ouspensky, 1960: 23s;).

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<sup>21</sup> To learn about the enormous differences with current scientific conceptions about the formation of the universe, see: Padmanabhan, 1998; Christian, 2004; Langmuir and Broecker, 1012 and Baggott, 2015.

<sup>22</sup> He did not present proofs and demonstrations that this Absolute exists, therefore it is a very remote hypothesis.

<sup>23</sup> Stating that there are only 48 orders of mechanical laws on Earth is extreme reductionism.

Regarding these non-existent ideas in astronomy, we can comment that, infinitely worse than submission to mechanical laws are the impossible environmental conditions for the emergence and maintenance of life, if an individual lived on another planet. For example, living on the planet Jupiter, with a smaller number of mechanical laws (24), is impossible, due to the environmental conditions of this giant planet, than living on Earth, with more mechanical laws (48), but with the environmental condition for the emergence and maintenance of life. It is necessary to note that Jupiter is not a rocky planet, but a gaseous one, so we still do not know what its surface is like, or if it even has a surface. Because, despite being approximately the same age as Earth, it has not developed habitable conditions for the emergence of life. It is very cold, due to the great distance from the Sun, its gravity is enormous, which makes the growth and movement of creatures difficult, it has no atmosphere, like Earth, it probably does not have liquid water, due to the low temperature, probably just ice, its mass is 300 times greater than that of Earth, hence a very high gravity and its diameter is 11 times greater than that of our planet. In conclusion, it is often better to live on Earth, with 48 mechanical laws, than to live on a planet without environmental conditions to maintain life, even if it has a smaller number of mechanical laws, such as Jupiter, with only 24 mechanical laws. Even worse would be to

live on the Sun, with only 12 mechanical laws, but under an incinerating surface temperature of 5,538°C. So, contrary to what Gurdjieff thought, it is much better to live on Earth, with the 48 mechanical laws, but with all the comfortable environmental conditions for the maintenance of life, than to live in any other place with a smaller number of mechanical laws. Anyway, these mechanical laws are insignificant when compared to the inhabitability of inhospitable extra-terrestrial conditions.

See the description below, in which the worlds and corresponding law numbers successively double on the Ray of Creation:

- 1.Absolute: a single law, his will
- 2.All possible worlds: subjected to 3 mechanical laws
- 3.The world of stars: subjected to 6 mechanical laws
- 4.The world of our Sun: subjected to 12 mechanical laws
- 5.The worlds of the planets of the solar system: subject to 24 laws
- 6.The world of Earth: subject to 48 laws and
- 7.The world of the Moon, subject to 96 laws.

The will of the Absolute is manifested only at the level of all worlds directly created by it. The plan, or model, created at that level continues mechanically, world after world, until it reaches the

end point of the Ray of Creation, which in our case is the Moon. Because we live under 48 laws, we are very far from the will of the Absolute. Movement towards the Absolute, stage by stage, through our own liberation from the mechanical laws that constrain us, is the path to self-realization. This means that the further away from the Absolute, the more mechanical laws subsequent worlds are subject to. The will of the Absolute is manifested only in the immediate world created by it, that is, the world of 3 laws. It does not reach the world of 6 laws. In the following worlds (12, 24, 48 and 96 laws), the will of the Absolute does not manifest itself. This means that, in world 3, the Absolute creates, in a certain way, a general plan of the entire rest of the universe, which is then developed mechanically. The will of the Absolute cannot manifest itself in subsequent worlds except through this plane, and in manifesting itself according to this plane it takes the form of mechanical laws (Ouspensky, 1957: 83 and 1960: 23-6).

As we have already mentioned, Gurdjieff never provided sufficient clarification on these mechanical laws, the most he did was understand them from a psychological perspective. As for the worlds in our Ray of Creation, it is impossible to explain physically and astronomically, which is why he used astrological and metaphysical ideas, because how is possible that a world that is in the same physical universe can differentiate in level

from another, which is also on the same physical plane. Just as the stars, which are in world 3 of the Ray of Creation, governed by only six mechanical laws, can be in a different world from the Sun, governed by 12 laws, which is in level 4, and the Sun is also a star. Likewise, planets cannot be on a different world (level 5) from Earth's world (level 6), since Earth is also a planet in the Solar System. Also, the Moon cannot be on a different world from Earth, since it is its natural satellite and was formed through debris from a collision of a giant celestial body with Earth 4.5 billion years ago, according to theory currently more accepted. This cannot be explained astronomically, only with the introduction of religious beliefs, astrological superstitions and speculative philosophies from the pre-scientific era, that it is possible to arrive at such delusional conceptions, since all the celestial bodies above are in the same physical world. . Furthermore, these pseudoscientific ideas were extracted from notions of speculators from Antiquity and the Middle Ages, when observation instruments (telescopes, etc.) did not yet exist, nor did exploration through space probes, robots, manned space travel, etc., to find out the composition of these bodies (stars, planets and satellites), and thus differentiate one from the other in terms of mechanical laws. How is it possible to differentiate one planet from another without knowing the size, gravity, density, environment, mass, atmosphere, temperature, habitat, orbital



and rotational speeds, magnetic field and core density of each planet? How was it possible for the ancients to attribute numbers of mechanical laws to celestial bodies without even knowing their natures, their compositions, their sizes and other details? Because, to know the number of mechanical laws of a planet, it is first necessary to know all the factors mentioned above, knowledge that esotericists, astrologers, religious people and ancient philosophers did not have. So, the ancients tried to explain the universe through what they were able to perceive in the microcosm, that is, in man, as Gurdjieff did: In his own words: "You know the expressions 'macrocosm' and 'microcosm'. This means 'big cosmos' and 'small cosmos'. The universe is observed as a 'big cosmos' and man as a 'small cosmos', analogous to the big cosmos. This establishes, in a certain way, the idea of unity and similarity of the world and man". And soon after, he reproduced the esoteric maxim: "As above, so is below" (Ouspensky, 1957: 205). We have already commented that this hermetic maxim is scientifically unfounded.

Without mentioning the sources, according to Gurdjieff, the following naive notions about the Sun, Earth and Moon were the most common notions of his time, which he uttered in a series of communications recorded in *In Search of the Miraculous* (p. 83). It is in this book that it is possible to find Gurdjieff's most didactic exposition on this subject (Ouspensky, 1957: 82s and

*passim*). According to Gurdjieff, for the popular notions of that time (first decades of the 20th century) “the Moon is a cold and dead celestial body, which was once like the Earth, that is, it possessed internal heat, and in a period still earlier it was a molten mass like the Sun. The Earth, according to popular opinion, was once like the Sun, and is also gradually cooling, sooner or later it will turn into a frozen mass, just like the Moon. It is commonly assumed that the Sun is also cooling and that it will, in time, become Earth-like and later Moon-like” (Ouspensky, 1957: 83). The reality is the opposite, the Sun is not cooling, it is a Yellow Dwarf star (G2V), 30% brighter than it was at the beginning, whose remaining lifetime is about five billion years, with time becoming it will become a Red Giant star, increase greatly in size and then swallow the planets Mercury and Venus, and incinerate the Earth (Botelho, 2021: 04). This is the future of the Sun.

Since the sources of these fanciful notions were not cited, it is difficult to know the cultural background of those who conjectured this way, at the beginning of the 20th century, as nothing that was said above matches the astronomical theories of the beginning of the 20th century, much less with current scientific findings (Langmuir and Broecker, 2012 and Baggott, 2015). Gurdjieff also noted that this popular idea “is the most widely held and one which has become the opinion of the average man in modern times as to the world in

which we live" (Ouspensky, 1957: 83). Now, if it was such a prevalent idea at that time, it would be very easy to cite the source from which he took this popular idea, as I was unable to find anyone who thought astronomically in this way in the first decades of the 20th century.

He also claimed that these popular ideas are unscientific, that among astronomers and astrophysicists "there are many deferential and contradictory theories and hypotheses on the subject, none of which have any serious basis" (Idem, 83). So, we will next analyse whether Gurdjieff's astronomical ideas have a "serious foundation". He also stated that "the idea of the Ray of Creation and its growth from the Absolute contradicts the general opinions of our days" (idem, 83). And that, for him, scientific are those that will be mentioned next, according to the theory of the Ray of Creation. According to him, "the Moon is a planet that has not yet been born, a planet that is, so to speak, being born. It is gradually warming, and in time (given a favourable development of the Ray of Creation) it will become like the Earth and have a satellite of its own, a new Moon" (Ouspensky, 1957: 83 and 1960: 196). Elsewhere, we find more details: "But the Moon is growing and developing, and at some point it will possibly reach the same level as the Earth. Then a new Moon will appear and the Earth will become its Sun. At one time (in the past) the Sun was like the Earth and the Earth like the Moon, and even

before that the Sun was like the Moon” (Idem: 25). Well, the absurdity of these fanciful ideas about the Moon, the Earth and the Sun are no less conjectural than the popular ideas that he previously dismissed as scientific. The Moon is not a potential planet, which is being born, as it will take many changes on the Moon for it to become a planet, like the Earth, it is already 4.5 billion years old and has never shown signs that it is being born and heading towards becoming a planet. Also, it is not heated, as it is not a cold body in its entirety, it receives the same heat from the Sun that the Earth receives, as both are at the same distance from the Sun, the differences in temperature are due to the differences in atmospheres. The temperature on the Moon's surface during the day exceeds 200°C, due to the low density of its atmosphere, which filters less of the Sun's action, since the Moon has no air (to learn about the scientific version of the formation of the Sun, Earth and of the Moon, see: Christian, 2004: 57-75; Langmuir and Broecker, 2012: 86-105 and Baggott, 2015: 146-200).

And then an even more astronomically delusional theory about the Earth: “The Earth, too, is not cooling, it is warming, and could, over time, become like the Sun. We observe such a process, for example, in system of Jupiter, which is like a Sun to its satellites” (Idem, 1957: 83 and 1960: 196). Now, saying that the Earth “could become like the Sun” is nothing more than astronomical

unfeasibility. Because a planet turning into a star is a phenomenon that has never happened and will never happen, it is a chemical, physical and astronomical impossibility, due to the huge differences in the nature of the composition of both. Gurdjieff took this fanciful idea from speculators at a time who did not yet know the chemical compositions of celestial bodies, therefore, before the beginning of space exploration, since he himself stated that “the idea of the Ray of Creation belongs to ancient knowledge” (Ouspensky, 1957: 82). Also, no less absurd is the statement that “Jupiter is like a sun to its satellites”. Jupiter does not have its own light, it reflects light from the Sun, nor does it have the strong luminosity and high heat of a star, as a planet does not carry out the process of nuclear fusion, nor the conversion of hydrogen into helium, as happens inside of a star to produce light and heat, therefore Jupiter cannot be compared with a star like the Sun. Anyway, comparing a planet with a star is another delusional astronomical conjecture.

Later he stated that “the study of the 48 orders of laws, to which man is subject, cannot be abstract like the study of astronomy; they can be studied by observing them in oneself and getting rid of them” (Ouspensky, 1957: 84). Well, from astronomical laws Gurdjieff transforms the orders of laws of the Earth, 48 in number, into psychological laws, which can be studied by

observing oneself, that is, through what he called “self-observation”, as well as, through the attempt to free oneself from these psychological laws. To explain these laws, he resorted to that ancient and already debunked hermetic maxim that “what above is like what is below, and what is below is like what is above”, already commented on previously. In other words, in this case, the universe being known through psychology.

### **The “Lunatic” Astronomy**

Of all Gurdjieff's unfounded ideas, none is more delusional than his belief in the supernaturalism of the Moon. His superstitious beliefs appear in different excerpts scattered throughout his works, so that, due to dissemination, it is necessary to select, so here we will limit ourselves to the strangest ones which, from a scientific point of view, or as a critical astronomer would assess, the most absurd. In an experience that takes us back to the superstitious mentality of Antiquity and the Middle Ages, he believed that “in our system, the end of the Ray of Creation, the ever-growing end, so to speak, of the branch, is the Moon. The energy for growth, that is, for the development of the Moon and for the formation of new shoots, this energy goes to the Moon from the Earth” (Ouspensky, 1957: 84-5). In short, what he meant is that the Ray of Creation is constantly growing, and that the Moon, which is

the end or the last world in our Ray of Creation, that is, the last link, is developing to become a planet, just like Earth and will possess a natural satellite in the future, thus creating yet another world in our Ray of Creation, perhaps with 192 mechanical laws ( $96 \times 2 = 192$ ), since the number of laws in the Ray of Creation doubles with each following world. We have already commented that the transformation of the Moon into a planet like the Earth is an astronomical impossibility, no astronomer has any doubts about this impossibility, given that the Moon is 4.5 billion years old and has never shown signs that it is on its way to becoming a planet, nor does it present such signs at the moment.

Then, even more absurd is the way in which the food for this development of the Moon is supplied by the Earth, that is, through energy that goes from the Earth to the Moon, as he clarified in the following passage: "This energy is collected and preserved in a giant accumulator located on the surface of the Earth. This accumulator is organic life on Earth. Organic life on Earth feeds the Moon. Everything that lives on Earth, people, animals and plants, is food for the Moon. The Moon is an immense living being that feeds on everything that lives and grows on Earth. The Moon could not exist without organic life on Earth, much less organic life on Earth could exist without the Moon. Also, with regard to organic life, the Moon is a giant electromagnet. If the action of the

electromagnet were suddenly stopped, organic life on Earth would be reduced to nothing" (Ouspensky, 1957: 85). Elsewhere, it is said that "The Moon currently feeds on organic life. Humanity is a part of organic life, this means that humanity is food for the Moon. If all men became too intelligent, they would not want to be eaten by the Moon (idem: 57). P. D. Ouspensky added more disparate details about the Earth's relationship with the Moon elsewhere: "The entire surface of the Earth, its composition and structure, depends on organic life (quite the contrary, the Earth survived for millions of years without the presence of organic life). It depends on taste and appetite. The Moon desires one thing, the Earth something else. (...) Certain matters pass (from the Earth) to the Moon in a way that, otherwise, it would not be possible to reach it. And they arrive in an already digested form" (Ouspensky, 196: 197). Regarding the reason for the creation of organic life, Gurdjieff said: "Organic life on Earth was created to fill the gap between the planets and the Earth" (Ouspensky, 1957: 138). Well, it is very evident that these are beliefs taken from ancient and medieval superstitions, a time when scientific knowledge about the Moon and the Earth was still in its infancy, that is, it was more burdened with myths, beliefs and superstitions than with astronomical research and scientific observation. Well, it was necessary to fill the unknown with conjectures. So it was necessary to believe in the



supernatural, that is, in actions that happen in other invisible worlds, for these notions to make sense, since, from an astronomical, astro-biological, geological and biological point of view, these ideas are scientific absurdities. Therefore, comparing organic life on Earth with a giant accumulator, as well as comparing the Moon with a giant electromagnet, so that the gravitational interaction between the Earth and the Moon was not enough, claiming that “organic life on Earth feeds the Moon”, are ideas that sound like delusions in the ears of scientists. As for the anti-scientific statement and contrary to the Natural History of the Solar System, that “the Moon could not exist without organic life on Earth...”, it is necessary to clarify that the Earth is 4.5 billion years old, the Moon began to be formed approximately 50 million years after the beginning of the Earth's formation, and life on Earth only emerged 3.5 billion years ago (Langmuir and Broecker, 2012: 274-7; for further discussion, see: Baggott, 2015: 201 -73), when an Earth's crust began to form as the Earth cooled, so for about a billion years the Moon survived without Earth's organic life. Furthermore, it took millions more years for single-celled life to transform into a complex cell and then into organic life, as well as many more millions of years before humanity emerged (see the diagram in: Christian, 2004: 58).

In another passage, in which he related the Ray of Creation to musical notes, he disastrously

compared the idea of food for the Moon with the musical note “re”: “but, it was clearly connected with the idea of food for the Moon. Some products of the disintegration of organic life went to the Moon, this must be (the musical note) re” (Ouspensky, 1957: 139). Also, he reinforced the lack of food for the Moon and its growth: “...organic life transmits planetary influences of various species to the Earth, and that it serves to feed the Moon, and enable it to grow and to strengthen” (Idem: 305).

Thus, when it is not possible to find an astronomical and geological explanation, the solution is to resort to a supernatural explanation: “The process of growth and heating of the Moon is connected with life and death on Earth. Everything that lives releases, at its death, a certain amount of the energy that has animated it; this energy, or the 'souls' of everything that lives (plants, animals, people) is attracted to the Moon through a giant electromagnet, and brings to it (the Moon) the heat and life on which its growth depends, that is, the growth of the Ray of Creation” (Idem: 85). Well, it has already been mentioned above, so there is no need to repeat that, astronomically and geologically, there is no physical proof that the Moon is growing in size and warming to become a planet. Only the supernatural imagination is capable of conceiving such an astronomical impossibility. Belief in the conjecture that “everything that lives releases, at its death, a

certain amount of energy” and that this released energy is attracted to the Moon, is an assumption drawn from supernatural speculation. Also, the belief that this energy “is attracted to the Moon through a giant electromagnet, and brings to it (the Moon) the heat and life on which its growth depends...” is another astronomical aberration.

And the absurdities do not stop here: “The souls that go to the Moon, perhaps possessing a certain amount of consciousness and memory, find themselves there under ninety-six laws, in the condition of mineral life, or to speak differently, in conditions in which there is no way out other than a general evolution through immeasurably long planetary cycles. The Moon is at the end, at the end of the world...” (Idem: 85). Through increasingly religious rather than astronomical interpretations, it seems that Gurdjieff conceived of the Moon as a kind of space hell. Now, if it were true, then this hell in the condition of mineral life is cooler and more bearable than the Christian hell of fire and torture. Therefore, it would be more advantageous to leave Christianity and then convert to the Fourth Way, safe in the knowledge that, after death, if we go to hell, it would be a more comfortable hell. Now, believing that “souls go to the Moon” only convinces those who are religiously pre-disposed to believe in the eternity of the soul. Based on his conception of the Ray of Creation, Gurdjieff believed that the Moon is “at the end of the world.” However, from an astronomical

point of view, this is a gigantic scientific ignorance, as gigantic as the giant electromagnet that the Moon uses to attract energy from the Earth. The universe is too immense, perhaps infinite, for the Moon to be at its extremity, strictly speaking, the Moon is not even at the extremity of the Milky Way, much less the universe. Only an extremely reductionist notion of the universe, such as this unproven Ray of Creation, which is capable of placing the Moon at the end of the world. In astronomers' current understanding, what may be closest to the end of the world is what is known as the "event horizon" inside black holes. Radio telescope consortia, which greatly amplifies the visualization capacity, have already managed to visualize the event horizon inside a black hole almost the size of the Solar System. Like other religious and esotericists, Gurdjieff did not imagine the gigantic advancement that astronomy would achieve in the second half of the 20th century, which is why he hastily issued ideas taken from old and unproven speculations.

And the astronomical absurdities continue to increase even more. According to Gurdjieff, the Moon influences the Earth and this influence is not small, as it is total: "The influence of the Moon on everything that lives is manifested in everything that happens on Earth. The Moon is the main, or rather the closest, immediate force that motivates everything that happens in organic life on Earth. All movements, all actions and all manifestations of

people, animals and plants depend on the Moon and are controlled by the Moon. The sensitive film of organic life that covers the terrestrial globe is entirely dependent on the influence of the giant electromagnet that is sucking its vitality. Man, like all other living beings, cannot, under normal conditions of life, free himself from the Moon. All his movements and, consequently, all his actions, are controlled by the Moon. If he kills another man, the Moon does the same; if he sacrifices himself for others, the Moon does that too. All actions, all crimes, all actions of self-sacrifice, all heroic deeds, as well as all actions in normal life, are controlled by the Moon" (Idem: 85; see also: 138). With these absurdities above, Gurdjieff surpassed the limit of absurdity and finally reached the sphere of comedy. In a way, it is necessary a high degree of astrological credulity to believe in "the influence of the Moon on everything that lives and manifests itself in everything that happens on Earth", as well as that there is a "sensitive film of organic life that covers the globe terrestrial", which is "entirely dependent on the influence of the giant electromagnet", which sucks the vitality from the organic life of the Earth. Even more comical is the statement that when "man kills another man, the Moon does the same", as well as when "he sacrifices himself for others, the Moon does that too".

And finally the conclusion of his nonsense: "The liberation that comes with the development of

faculties and mental powers is liberation from the Moon. The mechanical part of our life depends on the Moon, is subject to the Moon. If we developed consciousness within ourselves and will, and subject our mechanical life and all mechanical manifestations to them, we will be able to escape the power of the Moon” (Idem: 85-6). To conclude, now, if it is true that the Moon is such a big problem for the Earth, that is, something like “the big thorn in the Earth's life”, then replacing one comic with another comic in a joking way, it would be more efficient to use the our current advanced technology, and thus propel the Moon out of the Earth's gravitational reach, expelling it far away,<sup>24</sup> than carrying out all that tiring and endless effort of fighting against the mechanicity of our behaviour, as Gurdjieff's central teaching prescribes.

### **Amid So Many Inconsistencies, a Considerable Psychology**

Even for a sceptic, who does not believe in esoteric and religious ideas, Gurdjieff's psychology is capable of impressing due to its reasonable degree of scientificity, when separated from the religious beliefs that surround it. This is the only

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<sup>24</sup> An asteroid redirection test, in order to divert its route, called Double Asteroid Redirection Test (DART), was successfully carried out by NASA in November 2011

scientific part in the general set of his ideas and practices. If Gurdjieff had not associated and created a dependence on his psychology with esoteric ideas, religious doctrines, superstitions of the past and obsolete speculations, it could well have had relative recognition in academic and scientific circles. This association of dependence occurred due to his strong belief in the ancient esoteric maxim of the correspondence between the microcosm and the macrocosm: "what is below is like what is above, and what is above is like what is below". This maxim has influenced many esotericists now and in the past. In other words, the universe (macrocosm) is a reproduction of man (microcosm) and man, in turn, is a reproduction of the universe. So that, as esotericists imagine, if one knows the universe (macrocosm), one knows man (microcosm) and *vice versa*. Whereas, when investigated with current resources, in the universe there is more chaos than unequipped observers of the past were able to perceive, when compared with the order and the tranquillity prevailing in the Solar System and its surroundings, on the outskirts of the Milky Way, where the Earth is located. Today, with the advancement of scientific knowledge about the universe and man, we know that this correspondence cannot be proven, that is why this subject is not talked about in scientific circles today, it is a naive speculation of the ancients. In the past, this esoteric maxim was created in a pre-scientific era, when telescopes,

space probes, space robots, orbital satellites and orbital telescopes and the space telescope (James Webb), manned space travel did not yet exist and the international space station, for the knowledge of the macrocosm, with this, gravity, solar flares (Solar Flares), cosmic radiation, black holes, cosmic expansion, gamma rays, etc., were not known in the same way that laboratories, microscopes, X-rays, ultrasound and other instruments for investigating man and organisms did not yet exist. When the ancient macrocosmic speculations were elaborated, the knowledge of the sky was limited to what was perceived with the naked eye, so the universe seemed to be a harmonious and fully ordered system, without the ancients knowing that the Earth is in a privileged tranquil position on the periphery of the Milky Way, far from the chaos of its core. Today, with the help of powerful telescopes and orbital telescopes, we know that the universe is very chaotic, that order and tranquillity are not reigning throughout the universe and at all times, with massive black holes swallowing everything around them, gigantic explosions of stars and supernovae, monstrous collisions of planets, emission of gamma rays that destroy everything in front of them, orphan planets wandering uncontrollably through space and even what is most incredible, galaxy collisions. None of these phenomena occur in man or organisms; for example, there are no black holes in the bodies and minds of humans.



Like many esotericists and religious people, Gurdjieff also believed that sufficient coherence of ideas could, in many cases, ensure the reality of a doctrine. In other words, he thought that, based on old speculations, now obsolete, but inserted into a coherent and logical structure of ideas among themselves, his set of ideas had reality, something like a coherent system of ideas. Therefore, like many other esotericists, he emphasized “Coherentism”, to the point that his followers called the set of his ideas “System”. When Coherentism is exaggerated, it becomes a confusion between Formal Logic” and “Material Logic”, that is, the coherent correspondence between formal reasoning and the coherent correspondence between reasoning and reality (Material Logic). A reasoning can be very coherent formally in its elaboration, such as in a system with coherent ideas, but it can be flawed in its material reasoning, that is, not corresponding to reality. Coherentism is very present in doctrines, especially in religious doctrines and Theology. Below is an example, through a syllogism, of formally coherent reasoning, which conveys an “appearance of reality”, but which in its correspondence with reality, is flawed:

Major premise: Every Roman woman is Italian.

Minor premise: Lila was Roman.

Conclusion: Therefore, Lila was Italian.

This syllogism (reasoning), due to its apparent formal coherence, presents the signs of

reasoning that corresponds to reality, however when we apply material logic, that is, the correspondence between reasoning and reality, it is possible to perceive the flaw in the reasoning, because the Lila mentioned here was my mother, she was not Roman, because she was Brazilian, so that she could not be Italian as well . Ignorance about who Lila was leads to apparent reality, due to the formally logical reasoning of the syllogism, which appears as if this reasoning is reproducing reality. Anyway, exaggerated Coherentism leads, in almost all cases, to confusion between “reality” and the “appearance of reality”. Therefore, doctrines and systems with ideas that are very coherent among themselves are capable of converting beginners and influencing followers.

Gurdjieff devised a system whose psychology depended on metaphysical ideas, esoteric doctrines, obsolete speculations and even astronomical theories, but his astronomy included ancient astrological superstitions. This association with unfounded ancient speculations made psychology lose its scientific character, as it is supported by beliefs, and not by scientifically recognized ideas. His psychology of psychological centres, when detached from ancient beliefs and speculations, with the division into intellectual centre, emotional centre, motor centre and instinctive centre, is interesting and worthy of study. In conclusion, his psychology is the lotus flower of his system, however it is surrounded by a

morass of unfounded theories and obsolete speculations.

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